

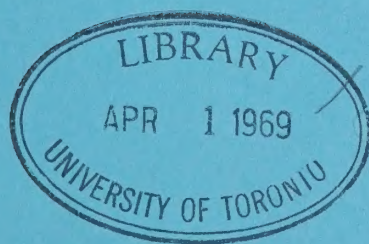
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Canada. [Commissions and committees
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Commission of inquiry into
freshwater fish marketing. Report.
1966.

**REPORT OF COMMISSION OF INQUIRY
INTO
FRESHWATER FISH MARKETING**



COMMISSIONER. GEORGE. H. McIVOR C.M.G.

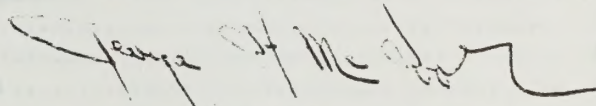
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**TO HIS EXCELLENCY THE GOVERNOR GENERAL IN COUNCIL
MAY IT PLEASE YOUR EXCELLENCY,**

As the Commissioner appointed by Order in Council dated the ninth day of July, 1965, P.C. 1965-1269 to enquire into and report upon the marketing problems of the freshwater fish industry in the Provinces of Ontario, Manitoba, Saskatchewan and Alberta and the Northwest Territories and, in particular, without limiting the generality of the foregoing, to consider and report upon:

- 1 - the nature of the factors which give rise to the weakness of prices for freshwater fish, particularly in the export market;
- 2 - the possibility of better coordination of production and supply in relation to demand to achieve more orderly marketing;
- 3 - the possibility and desirability of establishing an export monopoly to achieve more efficient marketing and thus provide better returns to primary producers, taking into consideration the proposals which have been before the Federal Provincial Prairie Fisheries Committee;
- 4 - relevant matters which may in the course of the enquiry arise or develop and which, in the opinion of the Commissioner, should be included within the scope of the enquiry and report.

I BEG TO SUBMIT FOR YOUR EXCELLENCY'S CONSIDERATION THIS REPORT



COMMISSIONER

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PREFACE

The present backwardness of the Canadian inland fishery and fish trade, and their uncertain position in future economic developments of this nation, has been recognized by the Federal Government and provincial governments concerned. The Federal-Provincial Conference on Fisheries Development in Ottawa, January 23 and 24, 1964, also included deliberations on the Canadian freshwater fish industry. At this conference it was agreed that marketing was one of the problem areas and that the usefulness of marketing board techniques warranted further specialized study. This led to the establishment of the Inter-Governmental Committee on Marketing Organization for the Freshwater Fisheries. This committee became subsequently the Sub-Committee of the Federal-Provincial Prairie Fisheries Committee on Marketing Organization. The recommendations put before the Federal-Provincial Prairie Fisheries Committee by its Sub-Committee gave rise to the establishment of my Commission of Inquiry to consider and report upon the marketing problems of the freshwater fish industry in the Provinces of Ontario, Manitoba, Saskatchewan, Alberta and Northwest Territories.

Marketing constitutes the process of moving freshwater fish from the primary producer to the consumer. Therefore, I concerned myself not only with exporting but also with domestic handling and processing of freshwater fish. Production problems in the primary fishing industry, to the extent that such problems do not affect the process of marketing, were not considered part of my terms of reference and were only touched upon briefly.

Weakness of prices of freshwater fish does not refer to a price level, but to the strength or weakness in bargaining of the buyer and seller in arriving at a specific price. When the market position of the exporter of freshwater fish or the fisherman is ineffective, i.e. when his influence in price determination is minimal, then his price is characterized by weakness. I was concerned, therefore, with the weakness of the bargaining

position of the Canadian exporter and of the fisherman in selling freshwater fish, and particularly with the underlying factors which contribute to this weakness.

The terms of reference recognize that the lack of co-ordination of supply and demand is a factor which affects adversely the export marketing of freshwater fish. The Commission is hence instructed to inquire into and report upon the possibility of better co-ordination which will achieve more orderly marketing, and will thus remove, in some degree, the weakness in export prices.

I am also commissioned to inquire into and report upon whether the current marketing situation warrants an export monopoly, whether persons and organizations involved in the marketing process want organized marketing, and whether an export monopoly or marketing board technique of selling can work for marketing freshwater fish. The Commission is instructed to consider the proposals which have been placed before the Federal-Provincial Prairie Fisheries Committee by its Sub-Committee on Marketing Organization. The recommendations of this Sub-Committee were as follows:

- (1) That a Freshwater Fish Export Authority be established by federal legislation.
- (2) That this Authority be the sole exporter of designated fish products of freshwater fish from Ontario, Manitoba, Saskatchewan, Alberta and the Northwest Territories.
- (3) That the Authority purchase, by contract, such products offered to it under contract by licensed fish dealers in the designated area.
- (4) That the Authority publish the price payable by it for such products at specified centres by quality.
- (5) That any surplus earned in trading operations be distributed by the Authority on a pro-rata basis.

(6) That each provincial government concerned and the government of the Northwest Territories provide for the appropriate reorganization of the primary and secondary fishing industries in their jurisdiction to ensure:

- (a) The channelling of supplies to the Authority, and
- (b) The maximization of returns to fishermen.

In carrying out my inquiry, having given due advance notice, public hearings were held at thirteen Canadian centres; in Manitoba at Winnipeg, Gimli and Winnipegosis, in Saskatchewan at Prince Albert and Meadow Lake, in Alberta at Edmonton, in the Northwest Territories at Hay River, and in Ontario at Belleville, London, Sudbury, Sault Ste. Marie, Port Arthur and Kenora. A transcript of the evidence placed before me at these public hearings has been compiled. The Commission received, as well, written submissions from various organizations and individuals. In order to obtain the views of all parties concerned with marketing Canadian freshwater fish, I also visited United States wholesalers, processors, and retailers in New York, Detroit and Chicago.

The evidence placed before me, supported with research carried out by the Commission is incorporated in my report. The report commences with a summary of the Commission's findings and recommendations, Section I. Next the Commission submits its findings in greater detail and elaborates on its recommendations. The background material which supports the findings are found in Section III, History of the Canadian Freshwater Fish Industry; in Section IV, Marketing Canadian Freshwater Fish; and in the Statistical Appendix.

The Commissioner wishes to thank his advisors, Dr. W.A. Kennedy and Mr. W.L. Posthumus, who were made available by the Fisheries Research Board of Canada, and the Department of Trade and Commerce respectively, for their

perseverance and diligence during the deliberations of the Commission and in the preparation of the report, and to Mr. R.W. Bedard of the Department of Trade and Commerce, who also facilitated the work of the Commission as Secretary.

The Commissioner is grateful to the Deputy Minister of Trade and Commerce, Mr. J.H. Warren who made available the facilities of his Department. Special thanks are due to Mr. Lorne Grant, Director, Central Area, Department of Fisheries; Mr. T.R. Kinsella, Assistant Director (Fisheries), Agriculture and Fisheries Branch, Department of Trade and Commerce, and Mr. H.V. Dempsey, Director, Inspection Service, Department of Fisheries, who provided valuable advice and assistance.

I wish to express my appreciation as well to the numerous other persons, in particular, Mr. J.O. Grieve, Toronto, and Mr. H.B. Monk, Winnipeg, who helped the Commission in carrying out the inquiry.

The Commissioner and his staff also appreciate the cooperation which they received in New York, Chicago, Detroit and Washington from members of the Trade Commissioner Service of the Department of Trade and Commerce. A special thanks is due to the United States importers and to the officials of the United States Government for the friendliness and hospitality which marked our reception and discussions.

FISH NAMES

Many species of Canadian freshwater fish are known by different names in different localities. To avoid confusion, common synonyms of the names used in this report are tabulated below. The scientific name is also given, since there is one scientific name and only one for each species of fish, a name which is the same in every language. "Spp." in a scientific name indicates a collective noun which includes several species of the same genus (i.e. several species which are much alike).

Name Used Here	Synonyms	Scientific Name
Sea Lamprey	lamprey.....	<i>Petromyzon marinus</i>
Sturgeon	lake sturgeon, rock sturgeon.....	<i>Acipenser fulvescens</i>
Alewife	sawbelly, gaspereau.....	<i>Alosa pseudoharengus</i>
Spring salmon	Chinook salmon.....	<i>Onchorhynchus tshawytscha</i>

Name Used Here	Synonyms	Scientific Name
Chum salmon	dog salmon.....	<i>Onchorthynchus keta</i>
Atlantic salmon	salmon	<i>Salmo solar</i>
Lake trout	trout, siscowet, togue, salmon trout, grey trout, machinaw trout	<i>Cristivomer namaycush</i>
Arctic char	<i>Salvelinus alpinus</i>
Inconnu	cony	<i>Stenodus leucichthys</i>
Whitefish	lake whitefish	<i>Coregonus clupeaformis</i>
Cisco	lake herring, herring, shallow-water cisco.....	<i>Leucichthys artedi</i>
Cisco	chub, (¹) tubilee (¹)	<i>Leucichthys spp.</i>
Smelt	American smelt.....	<i>Osmerus mordax</i>
Pike	jackfish, jack, northern pike, pickerel (in U.S.A.)	<i>Esox lucius</i>
Muskellunge	musky, lunge	<i>Esox masquinongy</i>
Goldeye	<i>Hiodon alosoides</i>
Sucker	mullet (²)	<i>Catostomus spp.</i>
Redhorse	mullet (²)	<i>Moxostoma spp.</i>
Buffalofish	Buffalo	<i>Ictiobus spp.</i>
Carp	<i>Cyprinus carpio</i>
Catfish	bullhead (applicable to some but not all catfish).....	<i>Ictalurus spp.</i>
Eel	American eel	<i>Anguilla rostrata</i>
Burbot	ling, lawyer, eelpout, maria, methy, loche	<i>Lota lota</i>
"White perch	<i>Roccus americanus</i>
White bass	silver bass.....	<i>Roccus chrysops</i>
Black bass	smallmouth bass	<i>Micropterus dolomieu</i>
Perch	yellow perch	<i>Perca flavescens</i>
Pickerel	yellow pickerel, yellow walleye, yellow pike-perch, walleye, doré, pike (in U.S.A.)	<i>Stizostedion vitreum</i>
Blue pickerel	blue walleye, blue pike, blue	<i>Stizostedion vitreum glaucum</i>
Sauger	sauger pickerel, sand pickerel	<i>Stizostedion canadense</i>
Sheepshead	freshwater drum, drum, silver bass, sunfish	<i>Aplodinotus grunniens</i>

(¹) Collective nouns, each of which include several species of cisco. The species included may vary from lake to lake.

(²) In recent years redhorse have frequently, and suckers have sometimes, been sold as "mullets", This could be regarded as misrepresentation, since there is an entirely different group of marine species which have for centuries been called "mullets" and sold under that name.

Freshwater Fish Product Forms

- Whole, round – as the fish comes from the water
- Whole, dressed – with “blood”, i.e. viscera, gills, kidney, etc. removed
- Whole, headless – “dressed” with head removed
- Fillets – “headless” with major bone structure removed

I-SUMMARY OF FINDINGS AND RECOMMENDATIONS

FINDINGS:

We find that:

- 1 – prices for round or dressed fish in export markets are weak because there are too many exporters to counter the control exercised by a few importers;
- 2 – in marketing round or dressed fish Canadian exporters receive too small a share of the price paid by the consumer, because, due to their relative weakness as sellers, they bear the cost of uncertainties and risks encountered in exporting;
- 3 – the uncertainties and risks are especially extensive in exporting round or dressed freshwater fish due to (1) the perishable nature of the product (2) the absence of effective quality control and of product standardization and (3) the lack of coordination between the demand and supply coming to the market;
- 4 – pickerel, pike, sauger, whitefish and lake trout, are the major species which are, in total, marketed mostly round or dressed; and that ninety percent of the total catch of these species are produced in the inland fishery of Manitoba, Saskatchewan, Alberta, the Northwest Territories and Northern Ontario;
- 5 – prices to the fisherman in Manitoba, Saskatchewan, Alberta, the Northwest Territories and Northern Ontario are weak, and the share received by the fisherman of the price paid by the consumer is far too low;
- 6 – the fisherman receives an unduly small share of the retail price because (1) the exporter passes on the reduction in export return to him which result from his ineffectiveness in bargaining with the importer and (2) because domestic handling and processing of freshwater fish is inefficient and costly.
- 7 – we agree in many respects with the proposals which have been before the Federal-Provincial Prairie Fisheries Committee concerning the desirability of an export monopoly. However, we disagree strongly with their proposals, that fish be bought from licensed fish dealers and not directly from fishermen, and as well that they make no provision for a direct transfer to the fisherman of any increased export earnings.

RECOMMENDATIONS:

We recommend that:

- 1 – a Freshwater Fish Marketing Board be established under federal legislation;
- 2 – the Board consist of not less than five and not more than seven members, one of whom shall be chairman and general manager, all to be appointed by the Federal Government;
- 3 – the Board be the sole seller of the freshwater fish and fish products produced in the designated area consisting of North-western Ontario, Manitoba, Saskatchewan, Alberta and the Northwest Territories;
- 4 – the Board accept delivery of freshwater fish only from the fisherman;
- 5 – the Board prior to the opening of each fishing season establish initial prices for the duration of the season for each species of fish, by grade, "in store" Winnipeg, and at such other exporting points as the Board may decide;
- 6 – the Board pool the returns from the sale of its fish and fish products and pool the costs incurred in marketing these products;
- 7 – the Board determine and make a final payment to the fisherman for the fish delivered to the Board, after all fish delivered has been sold;

- 8 – the Board undertake the handling, packing, processing, and storing of the fish;
- 9 – the board sell and dispose of the fish for such prices as it may consider satisfactory, keeping in mind the overall purpose of promoting the sale of Canadian freshwater fish in world markets;
- 10 – the Board have the authority to finance the fisherman with working capital;
- 11 – standards and grades for fish and fish products be established to promote orderly marketing, to guarantee a supply of prime quality fish, and to enhance consumer confidence in Canadian freshwater fish;
- 12 – financial assistance be given to the secondary fishing industry to modernize cold storage facilities and processing facilities;
- 13 – the Canadian Government make a formal approach to the Government of the United States to agree on a method of inspection of whitefish, which is mutually more satisfactory;
- 14 – a cooperative educational effort by all governments concerned to acquaint the fisherman with the operations of the Board;
- 15 – that present legislation governing water pollution be strictly enforced and that governments take all further steps required to prevent pollution of Canadian inland waters.
- 16 – research pertaining to freshwater fish and freshwater fish products be continued and expanded where desirable.
- 17 – that the opening and closing of fishing seasons on lakes be determined collectively by the governments concerned in order to facilitate the coordination of supply and demand.

II-FINDINGS AND RECOMMENDATIONS

A. FINDINGS

The Commission finds that the majority of the nine thousand fishermen engaged in the commercial inland fishery have failed to obtain an income from fishing which supports an adequate standard of living. Many fishermen supplement their low income from fishing with other, part-time employment. However, many freshwater fishermen are incapable of having or have no alternative employment opportunities, and consequently are living at subsistence levels. Such subnormal, and totally unacceptable living conditions occur especially in the northern segment of the inland fishery consisting of Northern Ontario, the northern halves of the prairie provinces and the Northwest Territories. In this area, the failure of the freshwater fishery to support normal living conditions is associated more and more with the Indian and Metis, as their participation in the commercial fishery has expanded in recent years.

(1) Production

The Canadian supply of freshwater fish has normally been between 105 and 120 million pounds. In 1964, inland fishermen landed a total of 105 million pounds. Its value to the nine thousand inland fishermen is estimated at about 13 million dollars. The more important species in terms of income to the fisherman are whitefish, pickerel, sauger, lake trout, pike, perch, smelt and cisco. Minor commercial species include goldeye, sturgeon, inconnu and a group of species normally designated as "rough fish," comprised of carp, sucker, catfish, etc.

The Commission finds that of the major commercial species the output of lake trout, pickerel and sauger has declined and that the landings of whitefish, pike, perch, smelt and cisco (chub

and tullibee) have increased. There has been an increasing regional concentration in the production of the species. The landings of pickerel, lake trout and whitefish from the Great Lakes⁽¹⁾ have fallen off sharply so that Northern Ontario, the prairie provinces and the Northwest Territories at present account for more than 90 percent of the total production of these species. The latter region also accounts for almost the entire commercial catch of pike and sauger. Cisco (lake herring, chub and tullibee) is produced throughout the entire inland fishery.

It is evident that the marketing of pike, pickerel, sauger, whitefish and lake trout is the concern almost exclusively of the fishermen, dealers and exporters in the western inland fishery and in Northern Ontario, where there are some six to seven thousand fishermen, three hundred dealers, and thirty-five exporters. The marketing of perch and smelt affects primarily the fishermen on Lake Erie and Lake Ontario and the dozen processor-exporters in the area.

The Commission finds that within the commercial catch the incidence of whitefish infected with *Triclaenophorus crassus* is increasing. Whitefish which are infected with this parasite are found in most of the producing areas in Saskatchewan, Manitoba and Northern Ontario. Whitefish landed in parts of Alberta and from the Great Lakes are generally free of infection. Landings of whitefish from the latter have fallen off substantially while those from the former have increased.

The presence of this parasite in the whitefish is a problem to the freshwater fish industry because the United States Food and Drug Administration prohibits the entry of infected whitefish, under the Food, Drug and Cosmetics Act

(1) In this report two subdivisions of Ontario fisheries statistics are used for convenience: (1) "Great Lakes", meaning the Canadian waters of Lake Superior, Huron (incl. North Channel and Georgian Bay), St. Clair, Erie, and Ontario, with their connecting waters, plus "Southern Inland Waters" of the published statistics; and (2) Northern Ontario which is equivalent to "Northern Inland Waters" in the published statistics. Great Lakes production plus Northern Ontario production equals total Ontario production.

of 1906. All whitefish entering the United States are therefore subject to inspection by F.D.A. officials. Rejected shipments, having suffered considerable deterioration in quality, are returned to Canada and are subsequently marketed for a greatly reduced return in the domestic market.

In order to minimize the effect on Canadian industry and to determine the infection as close to the source as possible, the "Whitefish Export Inspection Regulations" were established on March 8, 1951 under the Canadian Fish Inspection Act. Under these regulations inspection is carried out by Canadian inspectors. Inspection involves basically the cutting up of a number of whitefish from each shipment to determine the incidence of the parasite. However, the fish used as samples cease to have any commercial value, and represent a loss to the industry, both to the exporter and to the fisherman.

Even with prior inspection by Canadian authorities a good deal of whitefish continues to be rejected by United States inspectors because the samples used in both countries to determine infection are too small to give consistent results. Canadian inspectors examined 18.6 million pounds of whitefish in 1965, and rejected 950 thousand pounds or 5 percent. Of the 17.7 million pounds passed, the United States inspectors examined approximately 2.8 million pounds and rejected 410 thousand pounds or 15 percent.

It is obvious that there is little ground for confidence on the part of United States authorities in the methods employed by Canadian authorities to determine the rate of infection in whitefish. The presence of *Trienophorus crassus* and the present system of inspection and reinspection have a far-reaching effect on the marketing of whitefish. The Commission recognizes this as the most important problem affecting any single species.

The Commission finds that greater production of freshwater fish is possible, especially if there were a reversal in the course of a number of developments which have led to the underutilization of the present water resources and the stocks of fish available in them. We find that pollution has had a disastrous effect on some Canadian inland fisheries. Canada's greatest asset is pure unadulterated water. Yet year by year we Canadians are deliberately destroying this priceless

heritage. Further pollution must be stopped and waters presently polluted must be cleaned. We find that the opening of lakes for sport fishing and the consequent closing of such lakes to commercial fishing leaves the stocks of a number of non-sport species almost entirely unutilized. The encroachment of sport fishing on the commercial fishery is not only wasteful of fish resources, but it also forces the commercial fishery into more remote areas, where prices to the fisherman are lower.

We find also that the stocks of "rough fish" in Canadian inland waters are under-utilized. Under present market conditions the optimum exploitation of the stocks of these species is not warranted because of generally uneconomic returns, but present efforts should be greatly expanded to develop acceptable products from these species and to extend present markets.

(2) Markets

The freshwater fish industry markets approximately eighty percent of its production outside Canada. In 1965, it exported sixty million pounds of fish products, which earned Canada over twenty-two million dollars. While the freshwater fish industry is comparatively small in total output it is an important participant in Canada's export trade.

The United States is essentially the only customer for Canadian freshwater fish. Over ninety-five percent of all freshwater fish exports, or three-quarters of the total Canadian production is exported to the United States. The development of alternative markets for most species has generally not been successful because our exporters could not obtain comparable prices. In recent years, the only worthwhile effort to create alternative outlets involved pike, which is a less desirable species in North America, but which is well-known and appreciated in Europe.

Domestic consumption of commercially produced freshwater fish is not significant for the freshwater fish industry, partly because many Canadians who prefer freshwater fish catch their requirements themselves, having relatively easy access to lakes and rivers, and partly because of the availability of lower priced seafood. Also the quality of fish offered on the domestic market is

sometimes inferior. This is always true of whitefish which have been rejected by United States inspectors and have subsequently been returned to be sold on the domestic market. There is a need to develop the domestic and export markets for quality freshwater fish and fish products particularly those which utilize species such as rough fish, which are presently not fully exploited.

Although the United States is the major outlet for Canadian freshwater fish, the Canadian industry is virtually the only foreign supplier in that market. Imports of freshwater fish from Canada make up around forty percent of the total United States supply. Moreover, United States importers depend on Canadian production for nearly their entire requirements of pickerel, pike, sauger, whitefish and lake trout.

Pickerel, sauger, whitefish and lake trout are the high-priced species: the average export value per pound in 1965 was 52 cents, 44 cents, 39 cents and 40 cents respectively. Of the major commercial species, pike, perch and smelt are relatively low-priced, with average export unit values of 20 cents, 18 cents and 13 cents.

Export prices of pickerel, sauger, pike, whitefish and lake trout have seldom been higher than during the last one or two years. Prices rose most substantially for pickerel, pike and sauger. The average price of whitefish, the most important species, has only increased slightly during the past decade. The average export return on perch and on smelt, with wide variations from year to year, show no consistent upward or downward direction.

(3) Demand

In the past, pickerel, pike, sauger, whitefish and lake trout were marketed almost exclusively whole, either round or dressed. Today, the consumer is demanding these species increasingly in the fully-processed, conveniently-packaged fillet form. Accordingly, today sixty percent of the combined production of pickerel, pike and sauger is filleted. The Commission also estimates that thirty percent of all whitefish landings is

filleted, as are small amounts of lake trout. The Commission is of the opinion that this change in the pattern of utilization will continue provided production of these five species is maintained.

The Commission recognizes that there are two distinct markets for pickerel, pike, sauger, whitefish and lake trout. In general, the consumer of unfileted fish is willing to pay a higher price than the consumer of filets. The Canadian exporter on average during the year realizes more for these species when they are exported "in the round" or "dressed", than when he filets them.⁽¹⁾

The difference in return, again on a landed weight basis, between whole, dressed fish and filets is particularly large for whitefish.⁽²⁾ There are several reasons for the low return on filets of whitefish. They utilize largely fish which are unsuitable for the whole, dressed fish trade because of infection with *Trienophorus crassus*. There is no market for such whitefish unless they are filleted. Frequently, infected whitefish are filleted only after rejection by the United States inspectors, by which time quality has deteriorated. This deterioration reduces consumer acceptance. In addition, because of the texture of the flesh of whitefish and trout the present freezing techniques are inadequate to produce a consistently frozen fillet which can be stored for a considerable period of time without the loss of quality.

The western inland fishery produces primarily pickerel, pike, sauger, whitefish and lake trout. Plant processing, that is filleting, accounts for about forty-percent of the catch, and the remainder is dressed, iced and packed largely for export by fishermen and/or packers. The Great Lakes fishery produces primarily perch, smelt and bass which are almost exclusively plant-processed.

(4) Weakness in Export Prices

The Commission finds that although the market situation is currently favourable and ex-

(1) A pound of filets requires more than a pound of whole, round fish; but not twice as much which is necessary since about two lbs. of the whole round fish are required to make one pound of filets.

(2) In 1964, a whitefish weighting two pounds realized on average 61 cents sold whole dressed, and 40 cents when filleted.

port prices are comparatively high, the average return to the Canadian freshwater fish industry in export markets is not as high as it could be because the spread between the exporter and and retailer is too large.

We find that export prices are weak. When marketing Canadian freshwater fish, the Canadian exporter bargains from weakness, and the United States importer from strength. Therefore, the United States importer, as a middleman between the Canadian exporter and the United States retailer, passes on the costs of risks and inefficiencies encountered by him in marketing to the retailer and the Canadian exporter. And we find that the Canadian exporter has in general scarcely resisted because of both inability and unwillingness.

The ineffectiveness in bargaining and the uncertainties and risks in marketing are relevant especially to freshwater fish marketed round or dressed.⁽¹⁾ This involves mostly pickerel, pike, sauger, whitefish and lake trout, particularly the portion produced by the freshwater fish industry in the western inland fishery and in Northern Ontario.

In this region some 35 exporters handle the export movement of freshwater fish. Exports move largely through Edmonton, Prince Albert and Winnipeg, the last handling the largest volume. The portion marketed round or dressed is transported mostly to Chicago and Detroit. Two importers, of the nine in these cities, handle most of the Canadian shipments. These two importers are the dominant factor in the pricing of round or dressed freshwater fish.

As a consequence of the ineffectiveness of the Canadian exporter in pricing, most of the costs which arise from the risks and inefficiencies in marketing round or dressed fish are borne by the Canadian freshwater fish industry. The uncertainties encountered in marketing whole, fresh fish also offer the United States importer opportunities for taking advantage of the Canadian exporter. These aspects combined result in an unsatisfactory share of the consumer's price for the Canadian industry.

In the summer of 1965, in spite of the high price level at that time, the Canadian freshwater fish industry received only about half of the price paid by the United States consumer. The Canadian industry catches, dresses, ices, packs and transports the product, yet it receives only fifty percent of the retail price. We regard this as an unacceptable situation and one which can be substantially improved upon. The Canadian industry as sole supplier of these species to the United States market is wasting the marketing strength inherent in such an important supply position by sharing the selling function among too many individual exporters. Control over the marketing of these species rests by default with the United States importers.

(a) **Factors Underlying the Weakness in Export Prices**

Several factors are responsible for the uncertainties and risks encountered in the marketing of round or dressed pickerel, pike, whitefish, sauger and lake trout.

(i) The perishability of whole fresh fish not only adds to the cost of marketing but also adds risk and uncertainty. Fresh fish spoils rapidly. In fact fresh fish should reach the consumer no longer than a week after it has been caught by the fisherman. Moreover, during this week, it must be handled, iced, packed and stored properly. Fresh fish from the more northerly producing areas requires four or five days to reach the importing centres of Chicago and Detroit. It is readily apparent that export shipments from these remote areas will be of undesirable quality on delivery if there is any breakdown in forwarding.

The Canadian exporter is frequently uncertain whether his shipment is or is not of acceptable quality on arrival. There is no doubt that some shipments are not, and that the consequent spoilage losses are the shipper's fault. However, we note that the United States importers in Chicago and Detroit, with one exception, lack the equipment and storage facilities necessary to maintain quality. The Commission is of the opinion that these importers, in their influential position, are under no pressure

⁽¹⁾ Dressed fish is largely a product of the fisherman. The fisherman normally "dresses" the fish. There is little plant processing in the production of fresh, dressed fish. The fisherman frequently ices and packs the fish himself as well, though these functions are often left to the local dealer-packer.

to make an investment in satisfactory facilities, because the additional marketing costs for the importer evolving from the perishable character of the product are passed on to the United States retailer and the Canadian exporter.

We find that Canadian exporters are frequently faced with claims of poor quality with no assurance that such deterioration has in fact taken place, and even if it did, whether it occurred prior to arrival or resulted from mismanagement at the hands of the importer. On occasion invoice prices previously agreed upon with the Canadian exporter have been reduced arbitrarily on payment by the importer as much as two months after shipment.

(ii) The Commission finds that the absence of effective quality control and of product standardization in the Canadian freshwater fish industry aggravates the weakness of the Canadian exporter and enhances the strength of the importer. The lack of control and of standardization applies to all species that are marketed fresh, round or dressed.

The present regulations of the Canadian Government Fish Inspection Act states that fish shall be disposed of when found to be "tainted, decomposed, or unwholesome". Many shipments of fresh fish which are not tainted, decomposed, or unwholesome are still not a quality product from the viewpoint of freshness, cleanliness, firmness and general appearance. We find that Canadian exporters have shown little or no initiative in cooperating with government officials to improve quality control procedures. Canadian exporters are loath to adopt rigid quality control which would make their own positions as buyers more inflexible, unless importers accept these procedures as well. The Canadian industry is not in a position, in its present structure, to impose such quality standards on the importers.

Canadian exporters have tried a selling policy of limited product standardization with respect to size of fish and area of production. Importers in Chicago, Detroit and New York accept this standardization from time to time, but have not incorporated these standards on a formal basis in a price schedule. It is apparent that the introduction of any regularity in quality control and product standardization is resisted

by the United States importer because it will undermine his bargaining position. However, without a quality control system and product standardization recognized and accepted by both the exporter and the importer, the Canadian freshwater fish industry has no recourse when claims for poor quality are made by the importer.

(iii) The Commission finds that a good deal of uncertainty pervades the marketing of fresh fish because of fluctuations in demand. The incidence of this irregular demand pattern is con-founded in some instances by the lack of effective knowledge of market conditions in the United States on the part of the Canadian exporter. This deficiency weakens the exporter's market position and in turn enhances the control over marketing round or dressed fish by the importer.

The Commission finds that the lack of co-ordination between supply and demand, in other words that disorderly marketing by the exporters, increases further the uncertainty arising from the irregular pattern of demand. Canadian exporters frequently engage in "distress" selling. The exporter, then, decides to dispose of part of his supplies not because market conditions warrant such disposal, but because he may be short of working capital. Such uncontrolled selling is of advantage to the importer and weakens the market.

Each provincial government in its policy for opening and closing lakes during the fishing seasons wishes to promote fishing effort when market conditions are most favourable. While this individual action is laudable the combined result for the entire freshwater fishing industry, at times, leaves much to be desired, in that, supply exceeds demand and returns are depressed. Therefore, we suggest that provincial governments make every effort to determine collectively a more effective policy of closing and opening lakes which will coordinate supply and demand and thus benefit the entire freshwater fishing industry.

The Commission recognizes that each individual exporter controls to some extent the volume reaching the market in whole round or dressed form by filleting a portion of the fish purchased from the fisherman. However, in view

of the existence of two distinct demands for freshwater fish, one for whole round or dressed fish which on average yields a higher return on the fish as landed, and one for fillets, each individual exporter must have accurate knowledge of day-to-day market conditions in order to fillet the appropriate amount and to maximize his total returns. If the exporter fillets too much or too little in relation to current market conditions, he and the fisherman lose money. The Commission is of the opinion that this degree of coordination and control over the supply of whole fresh fish coming on the market is at present inconceivable when it is recognized that this must be achieved by some thirty-five exporters, who individually and collectively appear to have little or no dependable knowledge of consumer demand.

It is to be realized, however, that Canadian exporters encounter fewer problems and have a stronger bargaining position when marketing fillets than when selling dressed fish. Exporters sell fillets not to an importer-distributor, but directly to a retailer. There are a large number of importers of fillets, and hence foreign control over the export movement of fillets is not nearly as concentrated as for round or dressed fish. Also freshwater fish fillets, if frozen, can be stored. And because the fillets can be stored, coordination of supply and demand can be achieved more readily. Fish fillets are produced with greater quality control, and standardization of packing.

However, despite the advantages encountered in marketing fillets, we do not find it desirable to fillet the entire catch of pickerel, pike, sauger, whitefish and lake trout. To do so would reduce export earnings and income to the fisherman. As long as there exist a demand for premium whole round or dressed fish, the freshwater fish industry should be willing and able to supply this product. In order to achieve this and to realize a better return for the Canadian freshwater fish industry, an attack should be made on the weakness in export prices of whole fish by redressing the imbalance of power in the market, by establishing appropriate procedures for controlling quality and standards and by bringing about orderliness in putting the available supply on the market.

(iv) In exporting whitefish a great deal of uncertainty arises from the present inspection system to determine the rate of infection with *Trienophorus crassus*. The Canadian exporter has no assurance that whitefish found acceptable by Canadian inspectors will pass inspection regulations of the United States Food and Drug Administration. If the shipment of whitefish is not found acceptable by United States inspectors, then the fish must be returned to Canada at the expense of the Canadian exporter. It is the opinion of this Commission that the return on whitefish to the Canadian freshwater fish industry can be improved substantially if this uncertainty can be removed.

(5) Weakness in Domestic Prices

The Commission finds a weakness in the price generally received by the fisherman. The fisherman in selling his product has little or no influence on the price he receives. The price to the fisherman reflects the weakness in export prices as well as the cost of inefficiencies in handling and processing in Canada.

We find that there is weakness in the price of perch, smelt and bass to fishermen of Lake Erie and Lake Ontario. They have little influence on pricing because the processing plant is basically the only outlet for perch, smelt and bass. The fisherman must sell to the processor or otherwise his fish spoils. On the other side, the processor must have fish otherwise his plant is idle. Therefore, the weakness in the price to the fisherman on Lake Erie and Lake Ontario is most evident during years of abundance. At such time, there is overproduction in relation to processing and storage facilities, and prices drop drastically. This situation occurred again for perch in the spring of 1966.

The Commission finds, however, that the weakness in the domestic price for perch, smelt and bass is not caused by a weakness in export prices. In other words, it does not appear that there are problems encountered in exporting the solution of which would result in increased returns to the Canadian industry. The wide fluctuations in prices to the fisherman which occur from year to year are a reflection of inadequacies in domestic handling, processing and storing, particularly the latter. We note that an

approach towards solving the problems of this large local fishery can be made under present federal and provincial legislation.

The Commission finds that overall the weakness of the fisherman in the western inland fishery and in Northern Ontario is particularly appalling. Many fishermen in Manitoba, Saskatchewan, Alberta, Northern Ontario and the Northwest Territories, mostly Indian or Metis, lack the training for and have no alternative employment. During the fishing season, they must fish or remain idle. Many are located on small lakes in remote areas and have usually only one buyer for their fish. Because the fisherman lacks the capital and in order to assure a supply of fish, the buyer equips many fishermen with a boat, motor, nets, fuel, food etc. At the end of the fishing season, the buyer indicates whether the value of the catch was sufficient to pay for the rental of the equipment and the cost of the supplies. Often it is not, and the fisherman remains in debt until the coming season.

We find that under these circumstances, the fisherman is essentially an undentured labourer for the fish companies. It is self-evident that fishermen in this situation do not negotiate a price. There is no bargaining. The fisherman's prime concern is existing.

Although conditions have improved, we find that even today as much as twenty-five percent of the fishermen in the inland fishery in Northern Ontario and western Canada are still completely dependent on some fish company. The other fishermen equip themselves, and are therefore more independent, or are members of cooperatives through which they are equipped. Unfortunately, there is no accurate information on the number of fishermen in cooperatives and the number of independent fishermen.

Even when the fisherman is "independent", the price he receives has little relation to the export price. The grading according to size, which the exporter recognizes when he purchases whitefish from the dealer and on which ba-

sis payment is made by the United States importer, is not a factor at the fisherman's level. In the summer of 1965, for instance, fishermen on lakes in Northern Manitoba did not benefit from a six cent per pound increase in export returns for pickerel. We find that frequently the fisherman does not even know the price he will receive when he delivers his fish. Nothing indicates the bargaining weakness of the fisherman more than relinquishing his fish without knowing what he will receive.

The fish company, often in the person of its agent, does not commit itself to a price until the fish has been marketed, because of its own weakness in marketing. In this manner, the lower return caused by the strength of the United States importer and by the risks and uncertainties encountered in exporting is passed on to the fisherman. Therefore, the exporter need have little concern over the control which the Chicago and Detroit importers exercise over the export movement of round or dressed fish.

There is a large spread⁽¹⁾ between the price received by the exporter-processor and the price paid to the fisherman. During the summer of 1965, the fisherman in northern Manitoba received 16-28 cents at the lake for dressed pickerel for which the dealer received 34-47 cents f.a.s. the exporter's plant. The exporter received 50-56 cents f.o.b. plant if sold "dressed" and 56-64 cents if filleted. In this specific instance, the fisherman received less than half. Considering variations among the provinces and among species, the difference between the landed value to the fisherman and the market value realized by the exporter for the entire freshwater fish catch of the western inland fishery is between 40 and 55 per cent.

The Commission finds that on average the spread is excessive because handling, processing and storing are inefficient. There are too many dealer-packers, who pack and forward fish from the fisherman to the exporter. This appears to be the case especially in Manitoba where on average there is one dealer for every seventeen

(1) The spread comprises mainly transportation costs, the cost of icing and packing whole, dressed, round fish, the cost of filleting, the cost of storage, and a return for the labour and capital invested by the dealer-packer and exporter-processor.

fishermen. There are more exporters than is required to handle efficiently the present volume of fish in the western fishery. Also filleting plants are in general too numerous and too small and consequently filleting is relatively costly. In addition none of the cold storage facilities can maintain a temperature of -15°F, which is a prerequisite for producing top-quality frozen fish products. Dealers and exporters have shown little concern for the need to reorganize and rationalize the industry in this segment of the inland fishery, because the cost of the present inefficiencies are passed on to the fisherman.

We find that the formation of cooperatives has been instrumental in improving the bargaining position of many fishermen. Many fishermen members now obtain their equipment from their cooperatives, and are no longer dependent on the fish company. The cooperative ices and packs the fish, thus replacing the dealer-packer. Cooperatives sell directly to the exporter. Many sell their entire catch by tender even before it is caught. Obviously, these cooperatives have an influence in pricing. We find that the formation of cooperatives should be encouraged, not only achieve an improvement in the fisherman's market position, but also to develop more knowledgeable participation in marketing at the primary producer's level.

Even cooperatives bargain from weakness in their dealings with the exporter. In order to overcome this entirely, the cooperative movement in Saskatchewan has proceeded a step further. In that province, eighteen local cooperatives have their own sales agency, Cooperative Fisheries Limited, which handles their entire output. In this manner, the weakness in the price to the fishermen arising from his ineffective bargaining position has been overcome. The weakness of Cooperative Fisheries Limited as an exporter however remains.

We note that any increase in the influence of the fisherman in pricing, for instance, through the establishment of more cooperatives, occurs under the present industry structure, at the expense of the exporter-processor. More equitable bargaining between the fisherman and the exporter-processor does not result in itself in an improvement of the latter's position versus the United States importer. Greater organization of

fisherman in the western inland fishery has alleviated the pressure on the fisherman but has shifted it on the exporter. The share of the price paid by the United States consumer which the exporter receives remains the same, but he finds that he must give Canadian fisherman more. This development increased the industry's awareness of the need for rationalization and reorganization.

Rationalization, or increased efficiency in handling and processing can proceed only if the weakness in export prices has been reduced. A consolidation of export selling strength is the only way to retain the benefits of modernization and rationalization for the Canadian industry. But if only the exporter's position were improved, much of the improvement in the fisherman's position achieved by the establishment of cooperatives would be offset, and the position of the independent fisherman would in fact deteriorate. The Commission finds therefore, that a unified plan is required which will affect simultaneously an improvement in the price to the exporter and in the price to the fisherman.

In conclusion, this Commission is not aware of a worse pocket of poverty in Canada than the northern segments of the inland fishery. Current conditions are reducing the savings of those who in the past did well in the industry. An atmosphere of pessimism and doom has taken hold on the inland fishery, which will lead eventually to its downfall, unless remedial action is taken.

Improvements in marketing can add substantially to the fisherman's gross income; over and above what he would receive if current marketing conditions were to continue. It must be realized however that as much or more can be accomplished by a substantial reduction in the number of fishermen and by a rationalization of fishing. Federal and provincial governments should take action, where conceivable, which will provide for the education and training of fishermen and which will create alternative employment opportunities, and which will promote the use of more productive and remunerative fishing equipment.

We agree with the Sub-Committee on Marketing Organization for Freshwater Fisheries of the Federal-Provincial Prairie Fisheries Committee concerning its finding of weakness in

export prices and the consequent desirability of an export monopoly. However, the Sub-Committee did not limit its recommendations only to freshwater fish marketed round or dressed, and to those produced largely in Northern Ontario, Manitoba, Saskatchewan, Alberta and the Northwest Territories. We agree with the Sub-Committee that tight control by a small group of importers and fragmentation of the Canadian export trade governs the marketing of pickerel, pike, sauger, whitefish and lake trout produced in the western inland fishery, but we disagree that such tight control exists for the marketing of the five to ten percent of the total landings of these species and of the perch, smelt, bass and chub from the Great Lakes fishery.

The conclusions and recommendations of the Sub-Committee are wanting especially with regard to the benefits which would accrue to the fisherman as a result of the establishment of an export monopoly. The proposed Freshwater Fish Export Authority was to purchase its fish products from licensed fish dealers⁽¹⁾ and not from the fisherman. In other words, the dealer was to be the initial recipient of any increased export earnings.

The Sub-Committee recommends that any trade surplus earned in trading operations be distributed by the Authority on a pro rata basis.⁽²⁾ The Sub-Committee's draft act specifies that this trade surplus be distributed "amongst the participating provinces", after having notified the appropriate Minister in each province and after having received direction for the payments, ⁽³⁾ in proportions established by deliveries by each licensed fish dealer.⁽⁴⁾ Since no records are to be kept of deliveries made by each fisherman, it would appear that the Minister would have great difficulty in directing the trade surplus on a pro rata basis to the fisherman.

The fisherman's share of the higher export earnings, implicitly would continue to be determined by his effectiveness in bargaining with the dealer. Therefore, the fisherman would

benefit little from the higher export earnings of the proposed Freshwater Fish Export Authority unless a reorganization at the primary level took place. Consequently, the Sub-Committee recommended finally, "that each provincial government concerned and the government of the Northwest Territories provide for the appropriate reorganization of the primary and secondary industries in their jurisdiction to ensure: the 'maximization of returns' to the fishermen". There is a strong hint in the Sub-Committee's report that the "maximization of returns" would involve a rationalization of fishing effort to increase the fisherman's productivity rather than an improvement in the fisherman's selling position leading to maximization of prices. In any event, the fisherman would benefit little, if at all from the establishment of the export monopoly as recommended by the Sub-Committee, until such time, according to the Sub-Committee, as his bargaining position had been improved by reorganization under provincial legislation. We find this an uncertain, an indirect and a second-best way in which to pass on to the fisherman the increased returns from an export monopoly.

The Commission finds that the provincial governments of Manitoba, Saskatchewan, and Alberta and the government of the Northwest Territories recognize the desirability of an export monopoly. The province of Ontario did not officially commit itself on organized marketing,⁽⁵⁾ but a spokesman for the government implied that if an export monopoly were to be established for the inland fishery in the Northwest Territories and the three prairie provinces, that northwestern Ontario might be included in the designated area.⁽⁶⁾

From testimony put before us at the public hearings, it is clear that the trade, i.e. the private dealers, exporters and processors, are opposed to an export monopoly. We find, however, an awareness among the members of the Manitoba trade of a need for some form of reorganization and rationalization.

(1) Page 3, Recommendation 3

(2) Page 33, Draft Act Section 12, Subsection (b)

(3) Page 34, Draft Act Section 13, Subsection (i)

(4) Page 33, Draft Act Section 12, Subsection (c)

(5) Transcript of Public Hearings, Page 980.

(6) Transcript of Public Hearings, Page 983.

The inland fisherman in Western Canada and in northwestern Ontario generally indicated that there was an urgent need for change in the present system of marketing. Several times we found a deep concern over fluctuations in prices and hence an expression of a need for some measure to provide price stability. A number of representatives of local fisherman cooperatives, one a cooperative of Indians and Metis, supported the establishment of a marketing board. The Cooperative Fisheries Limited, the central sales agency for 18 local cooperatives comprising half the fishermen in Saskatchewan, also indicated support in principle for an export monopoly.

RECOMMENDATIONS

1. We recommend that a Freshwater Fish Marketing Board be established under federal legislation. The Board should handle all export and interprovincial sales. The interprovincial and export movement of fish and fish products and the sale of the same for export or interprovincially should be prohibited except by the Board or under license issued by the Board. The Board should also have the authority to control imports.

2. We recommend that the Board consist of not less than five and not more than seven members, one of whom shall be chairman and general manager, all to be appointed by the Federal Government.

The membership of the Board can provide adequate representation of regional interests. The Commission stresses the need however, for concentrating the control of everyday operations of the Board in one full-time general manager and chairman.

3. We recommend that the Board be the sole seller of the freshwater fish and fish products produced in the designated area consisting of Northwestern Ontario, Manitoba, Saskatchewan, Alberta and the Northwest Territories.

The Board should handle all export and interprovincial sales or movements of all products of all species of freshwater fish produced in the designated area. The Board should have however, the authority to exclude any category of fish or fish product from its operations. In reference to Northwestern Ontario, the Com-

mission is concerned with those producing areas west of Lake Nipigon which are not in the Great Lakes watershed.

While the Commission has recognized that the Great Lakes fishery, comprising mostly perch, smelt, bass and cisco (chub and lake herring), involves a marketing structure basically different from that in the western inland fishery, and while the direct benefits from an export monopoly for the Great Lakes fishery are consequently much less extensive, nevertheless, we deem it desirable that this fishery be included in the operations of the Board, when the fishermen involved, and the provincial government so decide. In this instance, it may however be necessary to set up a separate designated area.

4. We recommend that the Board accept delivery of freshwater fish only from the fisherman.

By accepting delivery from the fisherman, the Board can commence grading and quality control at this early stage. We recommend delivery and purchase at this stage also because the utilization of the raw material between alternative products such as dressed fish or fish fillets can be coordinated and centrally controlled. The Board would be required to designate "delivery points" and "agents" who are authorized by the Board to act on its behalf when taking delivery. These agents might be selected from among the present dealer-packers. The present competition and hence duplication of effort in assembling and forwarding would be eliminated.

5. We recommend that the Board prior to the opening of each fishing season establish initial prices for the duration of the season for each species of fish, by grade, "in store" Winnipeg, and such other exporting points as the Board may decide.

The Commission is of the opinion that the Board should determine the initial price for each species by grade (including quality) in accordance with the anticipated market return for each species by grade allowing for expected marketing costs and "safety margin". The Commission feels that the initial price of each species, by grade, should be determined on its own merit. The Commission feels that the initial

price system should not be used to promote one fishery at the expense of another by means of cross-subsidization.

The Commission realizes that the adoption of similar initial prices at the various export points means that the higher cost of transportation of (i.e. the lower return to) the more distant producer would be absorbed by the producer closer to the market. While this might prove objectionable to some, the Commission feels that the alternatives while more equitable with the present export movement, would also be administratively more cumbersome and reduce the flexibility of the Board in its marketing operations.

A fisherman might deliver fish to the Board's agent at a given delivery point either (1) in the round, or (2) dressed, or (3) headless and each of these forms could be either (1) packed or (2) not packed. Where appropriate, separate initial prices should be quoted for each of the six ways ("dress-packs") in which it is possible to deliver each grade of fish. These initial prices should provide for an equitable return for labour and production costs to those fishermen who pack and/or dress their own fish. Because local conditions determine local practice, in most cases all the fishermen in a community prefer to prepare their fish for delivery in the same way, or with one alternative at most. The Board should be empowered to specify which "dress-pack" or "dress-packs" are acceptable at each delivery point. The Board does not deem it essential that there be a distinction between fish produced from the summer fishery and the winter fishery.

6. We recommend that the Board pool the returns from the sale of its fish and fish products and pool the costs incurred in marketing these products.

The Commission recommends that this pooling be carried out for each species handled by the Board. There should also be a pool for whitefish not acceptable for export. We consider it a desirable simplification to incorporate the premiums for size, quality, etc. in the initial price only. It is the opinion of the Commission that separate pools on the basis of size, quality, etc. are not essential, and their exclusion would

reduce the number of pools substantially. On the other hand, it is recognized that for the sake of equity the number of pools could be increased to take into account other grades.

The pooling of returns from marketing for each species, by grade, must be accompanied by a corresponding pooling of costs incurred in marketing. The Commission recognizes that some marketing costs would accrue to the entire turnover of the Board, and that other costs must be charged to individual species pools.

Selling, operation, and administration expenses obviously accrue to all sales made by the Board. The costs incurred by the Board for filleting and storing, in the opinion of the Commission, are chargeable to the particular pool of the species concerned and are to be carried by the fisherman whose fish is sold round or dressed as well as by the fisherman whose fish is filleted. Filleting and storing are instruments of market stabilization which benefit the return on the sales of that species, both the return on the round or dressed product as well as the filleted product. Moreover, it is reasonable and equitable that if the benefit of stabilizing the market is for all fishermen producing the species in question, then the filleting costs should be carried by all producers as well, *and not only* by the fisherman whose fish happens to be filleted or stored.

7. We recommend that the Board determine and make a final payment to the fisherman for the fish delivered to the Board, after all fish delivered has been sold.

The final payment for each pool is to be determined by subtracting from the gross returns the initial payments made, and the costs charged to the pool. Since the final payment is to be made on deliveries into the pool, which may be on a round or dressed weight basis, therefore, the final payment must take this variation in consideration, or deliveries should be entered into pools on a common weight basis. The latter problem would not arise if deliveries were all made "in the round" or all "dressed".

8. We recommend that the Board undertake the handling, packing, processing, and storing of the fish delivered by the fisherman.

We recommend that the handling, packing,

processing, and storing be performed preferably by the present packers and processors under contract with the Board. In other words, the Board would have the authority to negotiate agreements stipulating the functions and the margins at which they are to be performed.

If, in the opinion of the Board, facilities are not adequate or are not available to the Board, then the Board should have the authority to establish and operate its own processing and/or storage facilities.

In as much as the Board would have the authority to negotiate agreements for handling, processing, forwarding and storing fish accepted at a particular delivery point, the Board in fact would determine the "spread" between "in store" exporting point and f.o.b. "in dock" prices at delivery points. The spread would consist of costs which are not pooled, and therefore, exclude filleting and storage costs. The spread, so determined, is to be taken from the "initial price", on delivery and would be different for each delivery point. For each species and grade, the individual fisherman would receive on delivery an initial payment which would be equal to the initial price minus the spread.

In actual practice, the fisherman on delivery would receive a certificate entitling him to participate in any future payments. This certificate would serve as a receipt indicating the volume of each species, grade and quality delivered, the respective initial prices, the respective spreads, and initial payments. A duplicate would be forwarded to the Board, which would credit the fishermen's account, and which would issue a cheque payable to the fisherman.

9. We recommend that the Board sell and dispose of the fish for such prices as it may consider satisfactory, keeping in mind the overall purpose of promoting the sale of Canadian freshwater fish in world markets.

The Commission considers it desirable that the Board use the present exporters as its agents under license for exporting the Board's fish and fish products. In other words, while the Board should determine the utilization of the fish produced within the designated area, the margins for handling, filleting, storing, etc. and

the export price, the actual physical functions involved, including exporting, would continue to be performed by the present trade.

We envisage that the Board will quote its selling prices "in store" at such exporting points as the Board may decide. The pricing policy of the Board presumably would be that the laid down cost of each fish and fish product at destination, would be the same regardless of exporting point. It is implied therefore, the "in store" export prices would vary in the amount of the difference in transportation costs.

10. We recommend that the Board have the authority to finance the fisherman with working capital.

Presently, the fish companies or dealers, provide this service. With the establishment of the Board the incentive for this service will have ceased. The Commission realizes that many fishermen are undercapitalized today and must be equipped by some person or organization in order to fish. Many fishermen have no collateral and have no ordinary banking facilities available to them. Moreover, the Board, or its agents, would appear to be the most likely agency to take over the provision of equipment and supplies after the fish companies cease to do this. Nevertheless, it is the firm opinion of this Commission that the Board should lend or advance only monies which it can expect to be repaid during the delivery period. In other words, the Board should provide only working capital or short term funds for such things as gasoline, oil, food supplies, repairs, etc. Even this limited financing operation of the Board should be handled separately from its marketing operation, so that financing cost could be ascertained accurately and levied equitably, i.e. on the borrowing fisherman and per dollar borrowed. Repayments would be made out of the borrower's account with the Board, which account would be credited with the initial and final payments on the borrower's catch.

The Board should not handle the financing of boats, motors and nets. Obviously, the monies provided by the Board for this purpose could not be recovered during the delivery period. This the Board could not justify, because in essence it is a trustee which holds funds in trust on behalf of the fishermen, which funds must be

accounted for by way of a final payment once a year. The Commission feels that the Board should also not administer the financing of boats, motors and nets with funds supplied by another source. This would compromise the position of independence of the Board versus fishermen, which independence is a prerequisite for a successful marketing operation.

At present a number of co-operatives receive financial assistance through the Indian Affairs Branch of the Department of Northern Affairs. This service might well be expanded to cover the financing of boats, motors, and nets, for individual fishermen upon the establishment of the Board. Actually, financing the fishermen with the needs for fishing would present much less a problem if all fishermen were members of co-operatives.

11. We recommend the establishment of standards and grades for fish and fish products, to promote orderly marketing, to guarantee a supply of prime quality fish, and to enhance consumer confidence in Canadian freshwater fish.

This recommendation and the following ones establish the environment which is a prerequisite for the successful operation of the Board. Standardization of grades and inspection are necessary to create confidence of the fisherman in the Board. Just as important, it would give the foreign consumer confidence in getting the type of fish preferred. While the Commission is particularly concerned with the inadequacy of grading and inspection today within the designated area, this recommendation would apply to the entire inland fishery.

Most, if not all, species should be graded by size. Fish should be brought from the fisherman as follows: (1) "round", i.e. as they come from the water, (2) "dressed", i.e. with viscera, gills and kidney removed, but with head, fins and scales still on, (3) "headless", i.e. same as dressed except with head removed. In addition, each of these categories may be either fresh or frozen.

Whitefish should be graded according to the rate of infection with *Trienophorus*. Whitefish which can be expected to pass United States

inspection should be graded "clear", and those which cannot should be graded "infected". "Clear" should be the only kind marketed in Canada, as well as in the United States, except as fillets, and should always be bought "dressed". For easy identification the "infected" should always be bought "round" or "headless". Details on the techniques for determining which lakes produce the "clear" grade and which the "infected" are readily available.

The grading of whitefish and pickerel should take into account whether they are caught in pound-nets⁽¹⁾ or gill-nets. Pound-net whitefish and pickerel realize at present a premium over gill-net whitefish and pickerel on the New York market.

Fish grades, obviously, must recognize quality. For the successful operation of the Board, the Commission is of the opinion that there should be only two quality grades of fish for human consumption; (1) good quality, (2) rejects. The Commission feels that "good quality" should represent a higher, more exclusive standard than acceptable for human food purposes. In order to assure quality, "rejects" should include all "whitegills", or "drowned" fish, meaning those which are dead when taken from the water.

Finally grading should take into account ways in which fish vary from lake to lake in fat content, in colour, and in other inherent characteristics which influence the ultimate consumer. There are sharply conflicting views on the relative merits, of fish from various lakes. It is our impression that local fishermen, dealers and officials are much more convinced of the inherent superiority of fish from certain lakes than are the United States buyers. Nevertheless, it is apparent that buyers are prepared to pay more for the fish from certain lakes because of inherent favourable characteristics. Certainly standards to determine these grades would be extremely difficult to establish, and in the actual grading it would be difficult to draw the line. However, it is desirable on the basis of equitable of the fisherman that the premium grades already recognized by the trade, be incorporated

(1) It is understood that for quality purposes "pound net" includes "trap net", and similar impounding gear.

in a grading system. The Commission has included tentative grades of fish based on grading practices presently recognized in the fish trade. This recommendation also expresses the need for standards and grades for processed fish products such as fish fillets.

The Commission recommends that the setting of standards should be excluded from the authority of the Board. We feel that this function should be left to the Federal Department of Fisheries after consultation with all parties concerned with production and marketing. The grading, i.e. the actual sorting of the catch, would have to be done by the agents of the Board. It is recognized that the fisherman, with appropriate knowledge, could perform most of the grading prior to delivery, with the "agents" of the Board checking and certifying the grades delivered. Inspection for export, i.e. determining that the standards set for the grades are rigorously applied, is constitutionally within the jurisdiction of the Federal Department of Fisheries.

The Commission acknowledges the present policy⁽¹⁾ of this Department not to examine or inspect every shipment of fish leaving a province, and that therefore proper grading would be first the responsibility of the Board and its agents. Nevertheless, it is the opinion of this Commission that federal inspection on a somewhat expanded basis would be desirable.

12. We recommend that financial assistance be given to the secondary fishing industry to modernize cold storage facilities and processing facilities.

We feel that the Board cannot realize its aims of orderly marketing and quality control with the use of currently available storage and processing facilities. Financial assistance, as an incentive, might encourage an early modernization program. In providing financial assistance, we emphasize that attention should be given to the goal of the most efficient utilization of the freshwater fish catch within the designated area. The Commission recommends that similar assistance be provided the Board, if and when the latter finds it necessary to take over present facilities and to modernize them or when there is a need

to erect new facilities because private initiative is lacking.

In this connection, the Commission thinks of the provisions of and regulations pursuant to the Cold Storage Act, Chapters 52 and 313, Revised Statutes of Canada, 1952. While these regulations are presently not operative, it is our opinion that such assistance might again be made available with regard to cold storage facilities for freshwater fish, providing these facilities can maintain a temperature of -15°F.

13. We recommend that the Canadian Government make a formal approach to the Government of the United States to agree on a method of inspection of whitefish, which is mutually more satisfactory.

It is essential to the operations of the Board, that it be known with certainty as close to the source of production as is possible, whether fish which is graded as "clear" in Canada will be accepted as clear by United States Food and Drug Administration inspectors. At the same time, the Food and Drug Administration must be absolutely certain that fish which is graded as "clear" in Canada is indeed clear. Using the present sampling techniques, neither the Board nor the Food and Drug Administration could have this certainty. We recommend that discussions be undertaken which can resolve this problem.

14. We recommend a cooperative educational effort by all levels of government to acquaint the fisherman with the operations of the Board.

The Commission in this connection is concerned with informing fishermen of the grades which the Board would use in purchasing their fish. This would be necessary in the first place to remove any distrust between the fishermen and the Board's agent when the latter certified the grades delivered. In addition, knowledge would give a sense of participation which in turn would promote an active acceptance and cooperation.

The fisherman should not only be acquainted with the grading or sorting of what he delivered currently. He must also with this knowledge be trained in the ways and means of upgrading his

⁽¹⁾ This policy is given in Appendix C.

catch. In this connection, there is a need for a long-term educational program which will show the fisherman how to produce the best quality possible. The Board's success would largely depend on quality, and therefore, the groundwork to ensure quality would have to be prepared thoroughly. Where cooperatives are present, the execution of this recommendation would be greatly simplified.

15. We recommend that present legislation governing water pollution be strictly enforced and that governments take all further steps required to prevent pollution of Canadian inland waters.

Legislation should not only aim to make and keep water "safe" for human use, but should simultaneously by create an environment in which Canadian freshwater fish can thrive. Corrective and preventive measures with regard to pollution should keep in mind the needs of the freshwater fishery.

16. We recommend that research pertaining to freshwater fish and freshwater fish products be continued and expanded where desirable.

One specific area of research which the Commission considers would be highly beneficial is a means of detecting the cyst of *Trienophorus crassus* in the whole whitefish. At present, a portion of each shipment must be destroyed in order to determine the rate of infection.

It is noted that the Fisheries Research Board of Canada and scientists of several provincial governments are conducting a research whose ultimate objective is to increase the harvest of useful fish from Canadian inland waters. These research programs should be encouraged and expanded.

17. We recommend that the opening and closing of fishing seasons on lakes be determined collectively by the governments concerned in order to facilitate the coordination of supply and demand.

A summary of the benefits of the Commission's recommendations are:

- (1) there would be an improvement in the bargaining position of the western inland fishery in marketing freshwater fish because there would be one selling organization, which would coordinate supply and demand and which would provide standardization and quality control,
- (2) quality would be improved and the consumer could have confidence in Canadian freshwater fish products,
- (3) utilization of the catch in the western inland fishery would occur in a coordinated centrally-directed manner which would maximize its market value,
- (4) the costs of assembling, handling and processing would be lower than those which result from the present inefficient system,
- (5) the extension and development of markets for current commercial species and for fish not yet exploited, such as "rough fish" would be centrally planned and directed,
- (6) export earnings on freshwater fish would be higher than they would be without these improvements in marketing,
- (7) the higher export earnings would be passed on directly to the fisherman.

III A HISTORY OF COMMERCIAL FISHING IN INLAND CANADA

1- INTRODUCTION

Archeological evidence indicates that the fisheries resources of many lakes in what is now Canada have been utilized by man for milenia. The first European explorers noted that fish was an important item of food to most of the tribes native to Canada. Prior to exposure to European techniques, aboriginal Canadians fished with spears, with copper fish hooks, with fish traps, and with gill nets made from local materials such as the inner bark of willow and cedar roots.

The special importance of whitefish in the early history of Canada is emphasized again and again in the literature by statements such as the following by explorer Preble: "So important are whitefish as an article of diet, that the sites of many, perhaps the majority, of the trading posts, as well as the wintering stations of a number of exploring expeditions, places which have become famous in Arctic literature, have been selected with a view to the local abundance of this fish, "or by Archbishop Tache of Greater Winnipeg: "I have lived for whole years on whitefish as my principal food and frequently the only food."

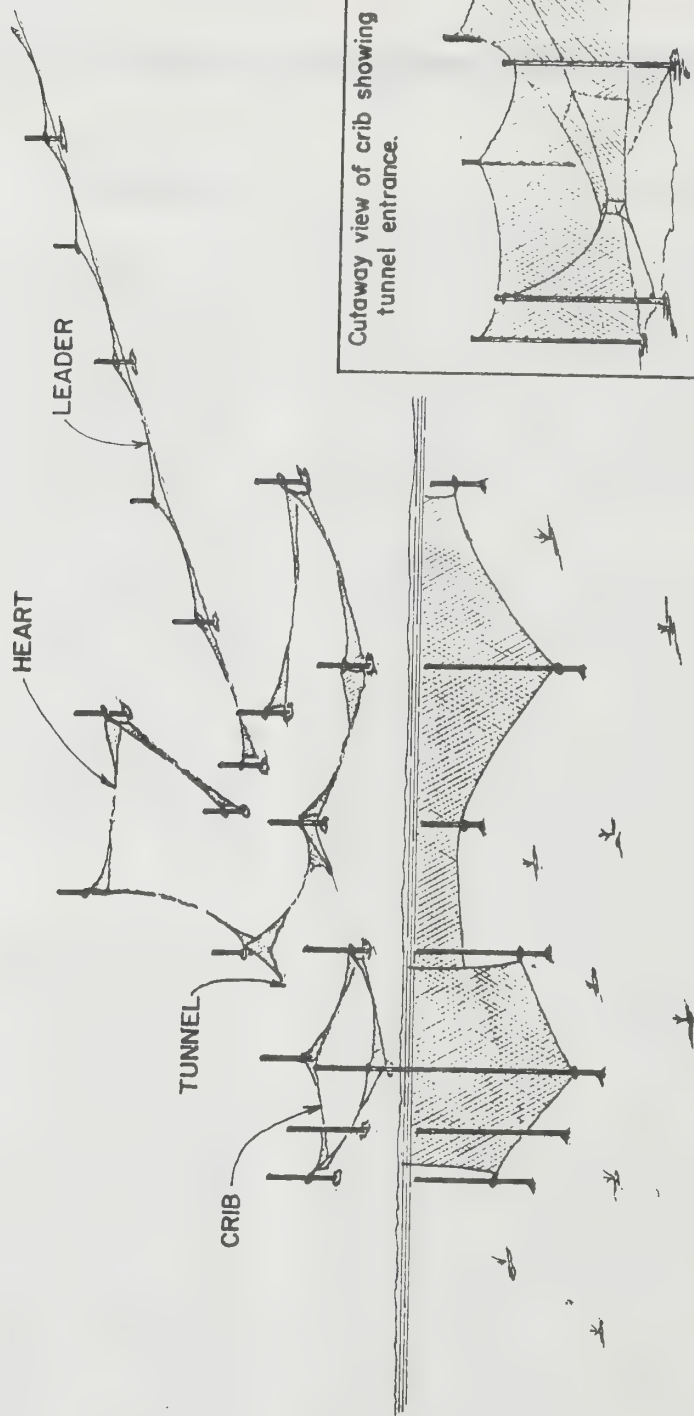
The earliest settlers caught and used local fish. As each settlement developed, some individuals, European immigrant or native, specialized in fishing, usually for local sale initially. As soon as there were adequate transportation and marketing facilities, these individuals often began fishing for markets outside the community. This history is essentially about such fishing for markets at some distance. It applies only to commercial fishing in the inland waters of Ontario, Manitoba, Saskatchewan, Alberta, Northwest Territories, and Yukon: commercial fishing in other inland waters of Canada is negligible by comparison. Fisheries for Arctic char along our northern coast are regarded as essentially marine and are not included, and a limited fishery in the estuary of the Mackenzie River is excluded on the same grounds.

2- LAKE ERIE

A remarkable abundance of fish, from earliest times, puts Lake Erie in a class by itself. In the 1700's Indians habitually gathered near Sandusky at the appropriate season to gather whitefish thrown on the beaches by northeast storms. Sturgeon could be taken in such quantities near Pelee Point that early Canadian settlers in that area found it worthwhile to spear them with pitchforks and haul them away by the wagonload to use as fertilizer on their farms. A U.S. government report on Lake Erie for 1885 says: "The fisheries of the lake are of vast importance, surpassing in extent those of any of the Great Lakes or of any body of fresh water in the world". This statement continued true for most of the period covered by this history. At present, roughly one-quarter of all the freshwater fish produced in Canada comes from the Canadian half of Lake Erie -- 35 million pounds in 1965.

By 1870, when the commercial fishery in Canadian waters first became appreciable, several of the then largest cities in the United States (Toledo, Sandusky, Cleveland, Erie, Dunkirk and Buffalo) were located on the shores of Lake Erie, and by the time modern transportation developed Lake Erie was reasonably close to the population centre of North America. As a result, Lake Erie fishermen have always been in a particularly favourable position for marketing their catch. With the greatest supply of fish and the readiest access to markets, the Lake Erie fishery has been much more prosperous than most of our freshwater fisheries. Most innovations in the freshwater fishing industry have originated in Lake Erie and gradually spread first to other Great Lakes, then to more distant fisheries. For this reason, the gear and methods used on Lake Erie are described in detail.

ROUND NET



Pound Nets

The pound net was particularly characteristic of Lake Erie. The web of the netting used in a pound net is relatively heavy material. "Stakes" (i.e., piles) which support the upper edge of the netting are driven several feet into the lake bottom and project several feet above the water surface. The stakes are carefully located in a predetermined pattern so that the net as fished will take a precisely determined shape. The pound net "leader" is essentially a straight fence of netting generally set at right angles to the nearest shoreline; when fish encounter it, they tend to move along it to its deeper end where the "head" of the pound net is located. The netting in the head is so arranged that fish are guided further and further into a trap from which retreat becomes increasingly difficult. Finally, they enter the "crib" (part of the head) where they remain like cattle in a pound until the fishermen "lift" by pulling up the bottom of the crib and concentrating the fish so that they can be easily and quickly brought aboard by dip nets.

About 1850 fishermen from Connecticut set the first pound net in the lake near Sandusky, Ohio. The first one used in Canadian waters was set near Wheatley in 1852. In 1853 two more were set in that vicinity and one was set at Lowbanks. From these localities at opposite ends of the lake the use of pound nets quickly spread along the whole Canadian shore, but they were particularly concentrated in the western third.

Pound nets have changed very little since they were first introduced. The biggest change has resulted from the introduction of synthetic fibres which, within the past 10 years, have almost completely replaced the cotton web and the manila or sisal rope formerly used. These new materials have largely eliminated the tarring of pound nets, formerly a time-consuming and unpleasant task.

Initially, pound-net boats were sailboats, 22 to 28 feet long with about 10 feet beam. They were flat-bottomed, of light draught, with removable rudder and centreboard, all necessary characteristics both to make it possible for the boats to enter the crib without fouling the netting and to enable them to be pulled out on the open

beach where they landed. During the first decade of the present century, gasoline-powered boats replaced sailboats. The new boats were also flat-bottomed; there was a universal joint in the propeller shaft so the propeller and shaft could be pulled up into a recess in the bottom when nets were being lifted or when the boat was beached. In the 1930's and 1940's steel hulls gradually replaced the wooden hulls used until that time, and power-driven aids to net handling were gradually introduced.

A floating pile driver is needed to drive the stakes which support a pound-net; the same vessel is also usually used to pull the stakes before freeze-up each year. Initially, both the "hammer" used to drive the stakes and the windlass used to pull them were operated manually. However, gasoline motors replaced manpower for these purposes early in the present century.

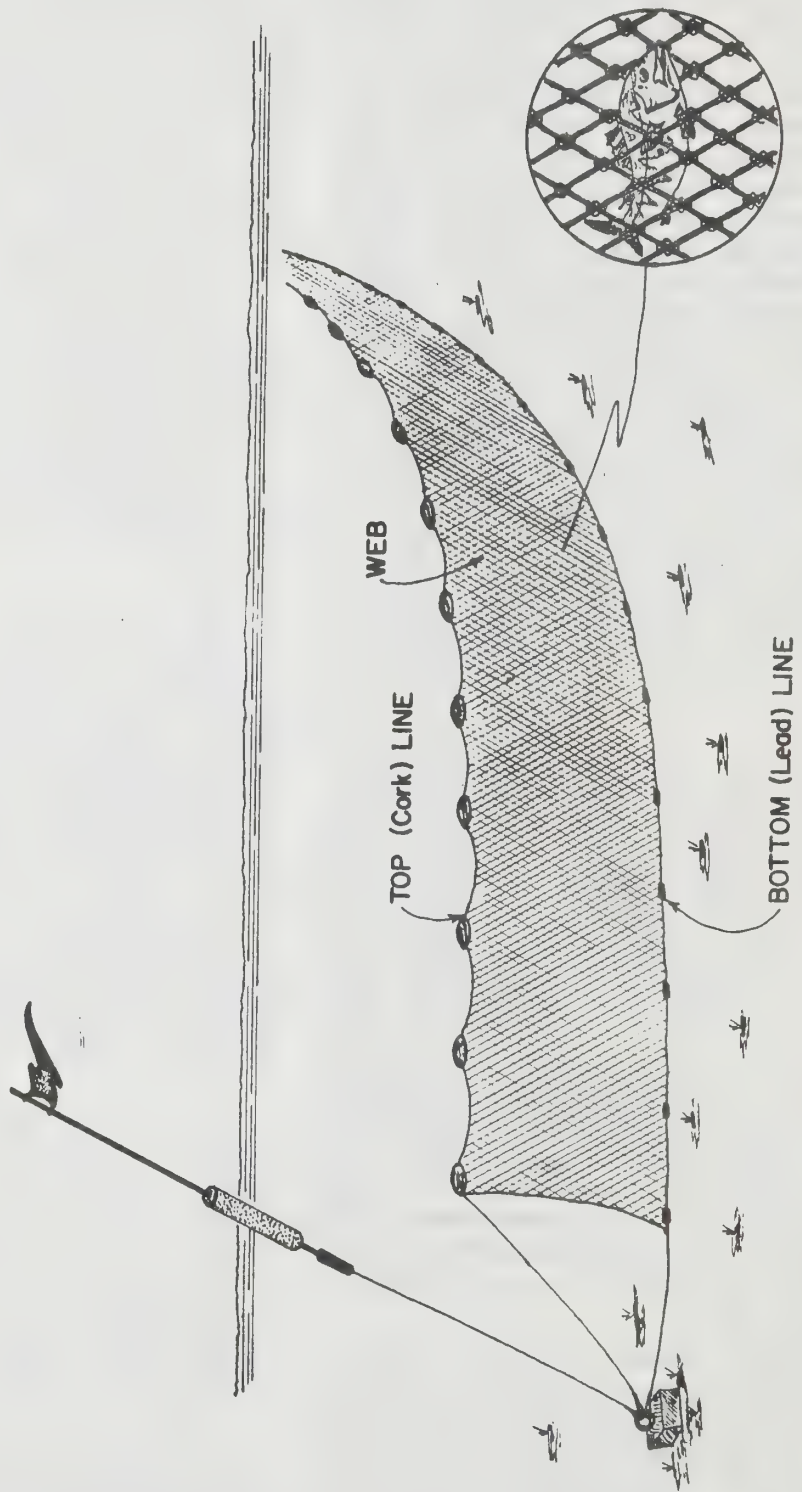
Gill Nets

The "web" of a gill net consists of tough, fine threads tied to one another in such a way as to make a network of equal-size squares, each called a mesh. Each of the long sides of the web is tied to stout cords of which one is weighted, the other equipped with floats. As usually fished in inland Canada, the weighted line of the gill net lies along the lake bottom; the floats are buoyant enough to keep the top line up but not float the whole net off the bottom. Fish become entangled in the web and are held until the whole gill net is pulled aboard the fishing vessel. Each fish must be individually removed from the mesh after the net is brought aboard.

On early gill nets stones were used for weights and crude chunks of wood for floats. However, early in the development of the commercial fishery, cast lead weights and shaped cedar floats became standard. At first the web was made of linen twine, but over a period of several decades, starting about 1900, cotton gradually replaced linen. In the 1940's hollow plastic "corks" replaced cedar for floats. About 1950 nylon twine replaced cotton in the web.

At first gill nets were fished from rowboats or from sailboats roughly 30 feet long. About 1880 gill-net fishermen began to use steam-powered vessels with screw propellers and by

GILL NET



1900 most gill-netting was done from "steamers". The first "steamers" were modelled after the steam tugs used for towing log booms, etc., and even had sturdy towing posts in the stern. Gill-net vessels on the Great Lakes have been called "tugs" ever since.

The early gill-net tugs were wooden-hulled, roughly 60 feet long, and relatively narrow. Working room on deck and stowage below were restricted because of the comparatively large space which the boiler, steam engine, and fuel occupied. The pilothouse was small. The nets were pulled by hand; a small roller was fixed to the rail of either bow for this purpose. Mechanical net pullers were developed about 1900, and soon all gill-net tugs were equipped with them. In the early 1900's gasoline and diesel motors gradually replaced steam power, hull design changed to give increased beam and blunter bows, and the space needed for propulsion machinery steadily decreased. Steel hulls gradually replaced wooden hulls between 1900 and 1930. Some shelter was soon provided for the men on deck, and shortly after 1900 some vessels had a deckhouse over the entire deck; by 1920 most tugs were so equipped. This deckhouse provided warmth and shelter to the fishermen as hour after hour they removed, one by one, the fish entangled in the gill nets and it also kept the gill nets on deck from freezing into a solid lump in the net box during cold weather.

Trap Nets

On the U.S. side of Lake Erie a new type of fishing gear, the trap net, gradually evolved. A trap net is essentially the same as a pound net, except that stakes are not used. Instead, the top edge is supported by floats while a system of anchors is used to hold the net in the proper shape. Unlike the pound net which extends from the surface to the bottom of the lake, the trap net usually extends from the bottom only part way to the surface. A trap net has several advantages over a pound-net; it can be easily moved; initial cost is less; operating costs are lower; more nets can be handled per boat; and it is less vulnerable to storm damage. Like the pound net, fish are held alive in the crib until the fishermen lift and scoop them out with dip nets.

For most of the period covered by this

history, trap nets were not permitted in Canadian waters. However, the ban on trap nets was relaxed in 1950 and by 1952 most pound-net fishermen had changed to trap nets. Cotton twine and manila or sisal rope was used at first, but these materials were soon replaced by nylon and other synthetics.

Seines, Fykes and Set Lines

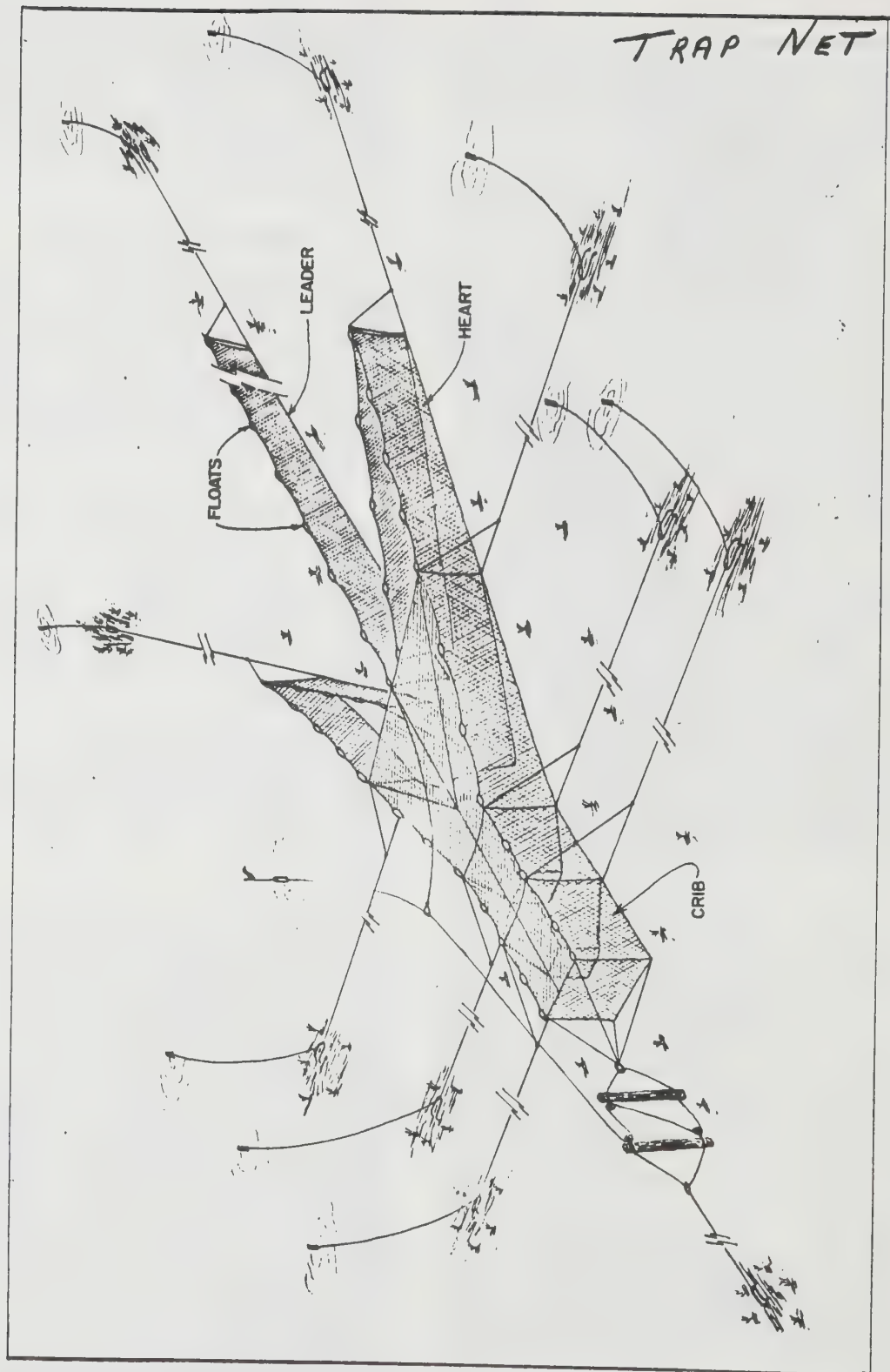
A seine is an oblong piece of netting with weights and floats which is set parallel to a beach, then pulled ashore, thereby enclosing fish between netting and beach. Seines were favored by the settlers, but were largely replaced by pound nets when the latter were introduced. Seines have played only a minor part in the fishery.

The principle of entrapment used in pound nets and trap nets is also used in fyke nets. However, fyke nets are much smaller. Round hoops, or sometimes square "hoops", are used to make fyke nets assume the required shape, and for this reason they are frequently called "hoop nets". They have played only a minor part in the fishery.

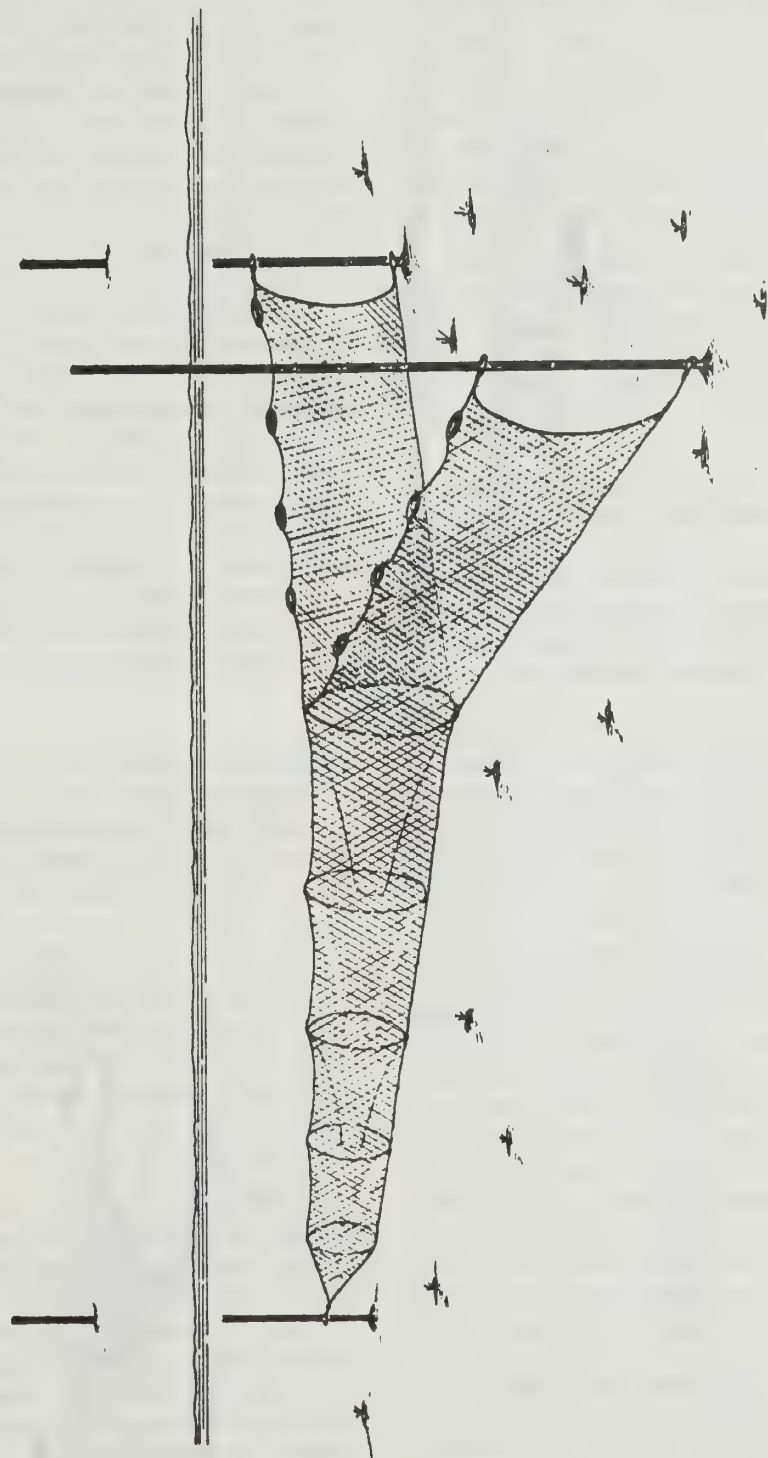
Although an appreciable part of the U.S. commercial catch has been taken by set lines, baited hooks have played only a minor role in the commercial fishery in Canadian waters.

Trawls

Since 1959 otter trawls have been used commercially on the Canadian side of Lake Erie. The netting in an otter trawl is of heavy twine, and the net is roughly the shape of a flattened funnel. This funnel of netting is towed along the lake bottom big end first, engulfing the fish in its path, they accumulate in the little end of the funnel, called the "cod end". Attached to either side of the big end of the funnel are the heavily weighted wooden otter boards which look very much like small doors. A rope or cable leads from each otter board to the fishing vessel. The interaction of the force exerted by the tow rope and of the resistance of the water makes the two otter boards pull apart, thereby spreading the funnel sideways. Weights and floats spread the funnel vertically. The trawl is brought aboard periodically and the fish are easily removed from the cod end.



FYKE-(HOOP) NET



TRAWL NET



Changes in Relative Use of Fishing Gear

Until the 1920's, pound nets were the predominant gear on the Canadian side of Lake Erie. Although both pound nets and gill nets were used in the eastern two-thirds of the lake, the use of gill-net tugs was originally greatly restricted in the western third of the lake where pound nets were particularly concentrated. These restrictions were gradually relaxed during the first World War and subsequently, partly as a result of declining catches ⁽¹⁾ and partly because of rising costs for wages and nets, the number of pound nets fished steadily decreased between 1925 and 1950. Meanwhile, the number of gill nets fished steadily increased. When trap nets were legalized in 1950, most pound-netters quickly changed to the new gear. However, trap nets were not the panacea that many had hoped, and the use of impounding gear has continued to decline. In recent years several gill-net tugs have been converted to trawling, so that gill-netting has declined somewhat from the peak reached about 1955.

Catch

By 1880 the once despised sturgeon was in demand and an important fishery developed for the species, particularly near Point Pelee. In spite of increasing fishing efforts, catches declined after 1890 and by 1900 sturgeon had become too scarce to be worth a special fishery.

From about 1850 until 1925, lake herring was the most important species in the fishery. Catches were particularly large between 1910 and 1925, then the species became scarce and catches declined to and stayed at a low level, except for good catches in 1945, 1946 and 1947, all based on a one particularly good hatch.

Blue pickerel have been an important species since at least 1885. While lake herring were plentiful, the fishermen used their gear in a way that would maximize catches of that species and blue pickerel were taken only incidentally. When lake herring became scarce, the fishermen make minor changes in gear and in techniques in order to maximize the catch of blue pickerel. Production of blue pickerel steadily increased after 1925 to a maximum about 1955. Shortly

after that they became scarce and catches declined drastically. Since 1960 blue pickerel have been so scarce that catching even one calls for comment.

The closely related yellow pickerel provided moderate catches from early times. Throughout the 1950's increasingly larger and larger catches were made. About 1960 catches began to decline and the species is now relatively scarce.

For over a century production of whitefish was moderate, although it has been an important species because of the high selling price. Unusually large catches were made in the 1940's. Since the early 1950's whitefish have become scarcer and scarcer.

Except for a decade about 1930, perch was a minor but steady contributor to the fishery until the late 1950's. Since that time, perch catches have increased considerably, and because of the scarcity of species which earlier supported the fishery, it has become one of the two important species produced.

Smelt are not native to the Great Lakes watershed. They were deliberately introduced into Crystal Lake which drains to Lake Michigan in 1912, and from there have spread through the Great Lakes. They were completely unknown in Lake Erie until the late 1940's and rarely seen until the early 1950's. During the past decade they have become abundant and an important fishery for them has developed. Smelt are small and at the price offered, the labour cost for untangling them from a gill net one by one exceeds their selling price. Pound nets and trap nets, from which a ton of smelt can be scooped in the time taken to untangle a few pounds from a gill net, are suitable for taking smelt when they are concentrated inshore for spawning but do not catch appreciable quantities at other times. Otter trawls, which take smelt in quantity at all seasons and from which they are easily removed, now produce most of the smelt taken.

Several other commercial species, including carp, catfish, sauger, white bass, sheepshead, redhorse, and suckers, have been and still are produced in moderate quantities.

⁽¹⁾ Attributed by many to relaxation of the restrictions on gill-net tugs.

Sturgeon, lake herring, whitefish, blue pickerel, and yellow pickerel have in turn each played an important part in the fishery. The history of the fishery for each species has been much the same. Production was relatively stable for a long time; then, following catches which for a few years far exceeded those of the long stable period, each species became and remained scarce. Since the pattern has been repeated for species after species, it is natural to suppose that there was some connection between the extremely large catches and the sudden decline in abundance which followed.

Although there likely was such a connection, other factors, particularly changes in the fish's environment, also probably contributed to a decline. One important change has been an appreciable increase in average water temperature since 1900, mainly because average air temperature has increased, but to some extent through man's activities such as in clearing the land, thereby decreasing shade and increasing the temperature of tributary waters. Temperature is known to be a very important factor in determining whether fish will survive in a given environment. For instance, recently published results of a scientific study show an important condition for a good hatch of whitefish in Lake Erie is a lower water temperature than has prevailed in recent years. Another change has been the deposition of sludge from sewage on many spawning grounds, making them unusable. Also, the chemistry of the water has changed considerably because of domestic and industrial sewage and of residues of chemical fertilizers from farmlands in the watershed; an important result has been the development from time to time of extensive areas in the lake where neither fish nor their food can live because of insufficient dissolved oxygen. Again erosion, both of the lake shores and along its tributaries as a result of clearing the land for farming and of other activities, has made the lake much muddier than it was a century ago; muddiness is known to have a considerable effect on whether fish thrive. Finally, the recent advent of smelt may have had an effect on the abundance of native species.

Marketing

Apart from strictly local sales, the early

production from the Canadian waters of Lake Erie was shipped across the lake (mainly by steamboat) and sold in the cities which were then mushrooming on the U.S. side of the lake, particularly Buffalo. Prices per pound to the fishermen in 1885 were: whitefish 5½¢; sturgeon 5½¢; yellow pickerel 5¢; blue pickerel 4½¢; lake herring 1¢. By the beginning of the present century, much of the catch was hauled to the nearest railway station by horses and shipped by rail, although some was still shipped across the lake in small steamboats. At first those who shipped by rail sold their fish by contract at a price to which both parties agreed before fishing started. After telephone became generally available about 1905, fish were usually sold by daily bargaining. By 1910 most pound-net operators packed their own fish in ice, hauled them by truck to the nearest railway station, and dispatched them by rail to New York or other markets. Some gill-netters also followed the same procedure, but since they were based on centrally located ports (as opposed to pound-netters who landed on open beaches all along the shore), many sold their fish in bulk to a local dealer who packed the fish from several tugs. In several cases local packers owned or controlled sizeable fleets of gill-net tugs.

In the 1920's wholesalers from Detroit began taking delivery of fish at the fisherman's packing house. By 1940 very few Lake Erie fish were moving by rail, most of them were moved by truck from the packing houses on the lake to wholesalers in Detroit, Chicago and other cities. Among the gill-netters, a growing discontent with the prices offered by local packers led to the formation of fishermen's cooperatives in a number of fishing ports to pack and sell their catch. Some of the co-ops still operate, but more have failed.

Until the 1930's most fish were shipped "in the round", i.e., just as it came from the water except for being packed in ice. As a notable exception, when the production of lake herring was heavy many were sold gutted with head on. In the past three decades more and more of the catch has been filleted, or in the case of smelt, gutted and beheaded. Filleting and smelt dressing have been carried out mainly by the packers at gill-net ports, including the co-ops. In recent years a good deal of the production from gill

nets, pound nets, trap nets and trawls has reached the market through one firm, which has become the biggest processor of freshwater fish in North America.

3- OTHER GREAT LAKES

Lake Ontario

The early beginnings of the commercial fishery are obscure. Apparently the local settlers combined fishing with farming and there was some trade in fish starting about 1800. By 1867, when the first records were kept, Lake Ontario was producing roughly 2 million pounds per year, a value only moderately less than the subsequent long-term average. The earliest fisheries were concentrated near Prince Edward County and on the Niagara Peninsula, but well before 1900 fish were being landed at ports all along the Canadian shore. During the past forty years the fisheries of the western two-thirds of the lake have gradually diminished, until now most of the fishing is based on ports in or near Prince Edward County.

Gill nets have always been, and still are, the principal gear used. Changes in netting material have been much the same as in Lake Erie. However, big gill-net tugs have seldom been used on Lake Ontario. Shortly after the beginning of this century, sailing craft and rowboats were replaced by gasoline-propelled, wooden-hulled open boats, typically about 30 feet long. The boats have remained about the same size, but there has been a gradual improvement in motors and in hull design. During the past two decades steel hulls have largely replaced wooden hulls and most boats have been fitted with net pullers.

Fyke nets have been and are of minor importance for taking some of the less desirable species, mainly within the Bay of Quinte. Seines have been used to a limited extent, particularly by the settlers. Production from other types of gear has been negligible.

Apart from the local trade, the earliest markets for Lake Ontario fish were Oswego, Buffalo and Toronto. Later, individual fishermen shipped a large part of the catch by rail to New York and other markets. In recent years most fishermen have delivered their catch to local

buyers who have packed it in ice and forwarded it by truck or rail to wholesalers in remote cities, mainly in the U.S.A.

Catches of ciscoes have fluctuated considerably, but the average catch has been roughly one million pounds per year, making it the most important kind of fish in terms of quantity produced. Production has been considerably below the long-term average during the past two decades.

Although lake trout production averaged roughly half a million pounds per year for two decades prior to 1930 and even exceeded one million pounds in 1925, the usual production for the past century has been considerably less. Production was particularly low during the past two decades.

Whitefish production during the century has fluctuated moderately around an average of roughly half a million pounds per year, except for the two decades prior to 1930 when considerably greater catches were made, as much as 2½ million pounds in 1923 and 1924. Recently whitefish catches have been well below the long-term average.

A landlocked form of the Atlantic salmon was prized in the early days, but production declined drastically after 1835 and the species was extinct in Lake Ontario by 1890. A number of minor species have collectively formed a substantial part of the catch during all or part of the past century. Roughly in order of commercial importance they are: pickerel (yellow and blue), pike, perch, catfish, carp, eel, sturgeon. During the past decade white perch, which were recently inadvertently introduced into the lake, have become a commercial species. Although alewives have been available in quantities throughout the history of the fishery, there have seldom been buyers for them.

Lake Huron

By 1800 there was a sizeable settlement in the vicinity of Michilimackinac and a local trade in fish. Although this early fishery was mainly in what are now U.S. waters, part was in Canadian waters and, in any case, the fishermen were mostly British subjects. In the early days settlers' wives unravelled linen cloth brought from Europe for clothing and used the treads to make the web

of the early gill nets. Before long, however, twine for net making purposes was being imported from Scotland. About 1860, cast lead sinkers and shaped cedar floats (i.e., "leads-and-corks") replaced the stone sinkers and the 2½-foot square boards (floats) used until then. About the same time, steam tugs began to replace the canoes, rowboats and moderate size sailboats used earlier. There was gill-netting in Georgian Bay as early as 1835 and at Southampton before 1855. By 1870 gill-netting was carried out in all Canadian waters of the lake. The development of techniques after 1860 was much the same as in Lake Erie, except for a larger proportion of small boats in Lake Huron and a slower change-over to diesel, steel hulls and enclosed decks. Gill-netting has been the principal method of fishing from the earliest times until the present.

Pound nets have been fished south of Goderich since 1882, and for almost as long south of Manitoulin island and at some localities in Georgian Bay. The pound net has always been of secondary importance on Lake Huron. The use of seines and of other gear has been inconsequential.

By 1870, when the Canadian Lake Erie fishery was just beginning to develop, the Lake Huron fishery was already a thriving industry with an annual production of over 4 million pounds. Although total Lake Erie production has been the greater since 1900, the Lake Huron fishing industry was also a very healthy one until about 25 years ago when a drastic change came about because of the advent of the sea lamprey.

Lampreys are somewhat eel-like in appearance and are sometimes incorrectly called "lamprey-eels". There are five species of lampreys in the Great Lakes of which only one species, the sea lamprey, is of special interest. Adult sea lampreys feed almost entirely on the blood of fish. As an adaptation to this method of feeding, they have strong sucking mouths by which they attach themselves securely to their prey. Through the combined action of strategically placed teeth and of a corrosive oral secretion, a lamprey soon seriously wounds the fish to which it is attached, then feeds on its blood. Some fish survive a sea

lamprey attack but many, probably most, die either through loss of blood or because of subsequent infection of the wound. Thus sea lampreys kill fish many times their own size. Since they use only the blood, a small fraction of the total weight, the number of fish required per lamprey is much greater than the number required by a predator which eats all of its prey. Thus a comparatively small number of sea lampreys have a surprisingly great effect.

Sea lampreys are a widespread species, being native to both coasts of the North Atlantic Ocean. During prehistoric times, a special group within this species became adapted to freshwater life in Lake Ontario. Niagara Falls prevented these freshwater adapted sea lampreys from reaching the other Great Lakes until construction of the Welland Canal opened an invasion route. Although they must have reached the lake earlier, the first concrete evidence of their presence in Lake Huron is a 1937 report. The rapidity with which they then increased in numbers and spread to all parts of the lake was phenomenal. Although sea lampreys attack almost every species of fish, they do not seem to have seriously affected the abundance of any species except lake trout. Their effect on lake trout abundance has been drastic.⁽¹⁾

Until the advent of sea lampreys, lake trout were the most important fish taken from the Canadian waters of Lake Huron. For half a century, about 4 million pounds of lake trout had been produced annually. Then, as a result of lamprey predation, trout catches declined rapidly after 1936 to less than a million pounds in 1945.⁽²⁾ Catches declined further to virtually nil in recent years.

For most of the past century, annual production of whitefish has generally been between one and two million pounds. A notable recent exception has been spectacular catches in Georgian Bay during the 1950's which were entirely the results of an unusually good hatch of whitefish in 1943.

⁽¹⁾ Repeated attempts to find a correlation between the decline in lake trout and factors other than lamprey predation have failed.

⁽²⁾ The 1945 production was mainly in Georgian Bay where sea lampreys became established later than in the main body of the lake.

During the past century, cisco catches have fluctuated considerably around an average of about one million pounds per year without an over-all trend to increase or decrease. There seems little doubt that catch has been governed by demand rather than by supply.

Several other species have contributed in a small way to the fishery, including sturgeon, pike, pickerel, and perch. Smelt have been locally plentiful since the 1930's but there has been almost no commercial fishery for them.

By 1870 fish were regularly shipped by steamboat from the Duck Islands, Georgian Bay and the North Channel to wholesalers in Detroit. During the next few decades, railways replaced steamboats for transportation, although fish were in some cases moved considerable distances by water to the nearest railway station. Since 1930, trucks which haul fish directly from the fishermen to the wholesaler have replaced rail transportation in some areas, particularly for ports between Sarnia and Tobermory. Marketing methods have developed about as on Lake Erie.

Lake Superior

From early times,⁽¹⁾ the Ojibways came from considerable distances to Sault Ste. Marie in order to carry away, after smoking, whitefish which they caught in the St. Mary Rapids at the foot of Lake Superior. In the 19th century it was quite common for two men in a canoe with dip nets only to take over 1000 pounds of whitefish per day.

From 1832 to 1842 small quantities of whitefish caught near Grand Portage (now Fort William) were salted, packed in barrels, and sent by boat to Detroit. About 1860 a similar fishery operated in the general vicinity of Rossport. Starting about 1885 most of the catch was sent to market as fresh fish packed in ice, and the newly built railway was used increasingly for shipping to market fish from the northern part of the lake. However, some fish from the area were moved by boat to U.S. ports as late as 1928. In recent years the use of trucks has steadily increased.

Prior to 1880 there had been a small fishery near Sault Ste. Marie for local use. In 1882 U.S. capital financed a fishery in the Canadian waters and, as a result, production increased several fold in the next decade. The fish were landed at small communities which were established for the purpose along the shore north of Sault Ste. Marie, about as far as Pancake Bay by 1885; later similar fishing communities developed still further from Sault Ste. Marie. Steamboats gathered the fish from these small communities and brought it into Sault Ste. Marie, where it was iced, packed and forwarded by lake freighter (later by rail) to Chicago and Detroit. The gradual development of roads, in the past 30 years, particularly in the past decade, has resulted in the fish being moved to Sault Ste. Marie by truck rather than by boat. In recent decades the fish have usually been packed at the fishing communities rather than in Sault Ste. Marie.

Although some pound nets and other gear have been used, the fishery has been mainly by gill nets. A few larger fishing tugs have been used, but most of the fishing over the years has been carried out from smaller vessels, typically sailing vessels until about 1915, since then wooden-hulled, gasoline-powered boats without net lifters,⁽²⁾ with a skipper and one helper or even with one man alone; such vessels usually fished close to their home port.

Lake trout was by far the most important species in the Canadian waters of Lake Superior during the first half of this century. From 1895 to 1950 the annual catch averaged about 1.5 million pounds and was never less than one million pounds. As a result of sea lampreys, first reported in 1946, lake trout catches declined steadily after 1950 from the long-term average to 3% of that average by 1960. Because of massive, expensive plantings of hatchery-reared young, the catch has since increased slightly to about 8% of the pre-lamprey level.

Whitefish was the most important species initially. After 1900 it became secondary to lake trout and mainly caught incidental to the lake trout fishery, about one pound of whitefish

⁽¹⁾ Reported by Jesuits in 1640.

⁽²⁾ Net pullers have been used increasingly during the past two decades.

for every five pounds of trout. Since the advent of the sea lamprey, whitefish production has decreased.

Cisco production has been quite erratic, sometimes exceeding lake trout in quantity, although always far less in total value. It seems likely that production has depended on demand rather than on supply, although legal restrictions have also been a factor in limiting production.

Although catches of yellow pickerel have gradually increased for the past century, production is still relatively small. Sturgeon was an important species for a short time in the late 1800's, but catches in this century have been negligible. No other species have been of importance.

Smaller Lakes

Although Lake St. Clair is a link in the Great Lakes chain, it is not usually regarded as one of the Great Lakes because of size. Canadian production has fluctuated only moderately around an average of slightly less than one million pounds per year for almost a century, a substantial production when relative area (1/40 of Lake Superior) is considered. It is of historical interest that the catch included substantial quantities of lake trout and ciscoes until 1893, and of whitefish until 1920. The disappearance of these coldwater species strongly suggests that the lake is appreciably warmer than 100 years ago. In recent years pickerel and carp have been the most important species, although several other are also taken.

Pound nets and seines have been the principal means of production. Baited hooks have also made a significant contribution. Gill nets have not been used. The fishing boats have of necessity been small and of shallow draft. Marketing procedures developed much as in Lake Erie, although strongly influenced by the fact that all parts of the lake are close to Detroit, a good market. An interesting recent development is a growing market for live fish to stock privately-owned ponds, mostly in the United States, where the general public angle for a fee.

Although there was some commercial fishing on Lake Nipigon as early as 1898, the first

fishery of any consequence began in 1917. Gill nets have been the only fishing gear used. Fish tugs equipped with net pullers, but decks not enclosed, were used from the first; only in recent years have tugs with enclosed decks been used. The catch has been mainly whitefish and lake trout. Pickerel and sturgeon have been of less importance, and a few other species have also been taken.

The earliest available records indicate that in 1885 Lake Nipissing produced 70,000 pounds, mainly pickerel, pike, and whitefish. Sturgeon, muskellunge, black bass, and cisco were soon added to the list and over 100,000 pounds per year were produced for several decades. In 1922 commercial fishing was drastically curtailed by law, and since 1930 the annual catch has usually been less than 30,000 pounds. Gill nets were the principal fishing gear until 1908; since 1908 pound nets have been the only gear permitted.

In 1615 Champlain noted that the Hurons were fishing in Lake Simcoe. Ojibways, who later moved into the area, also fished the lake. Europeans settled around the lake between 1820 and 1830 and soon were fishing, mainly using methods learned from the Ojibways. A good deal of the catch was used locally, but a commercial fishery to supply more distant markets also developed early in the last century. Fishing was carried out through the ice as well as during the open water season. Spearing has until very recently been a standard means of production. Gill nets were used in increasing numbers until 1885 when their use was restricted by law. By 1890 gill nets and most other fishing gear were illegal, and gill nets have not been an important factor in the commercial fishery in this century. Seines were the important gear from 1910 to 1929, then seining diminished to nil by 1950. Fishing with hooks has always been an important part of the commercial fishery and in recent years has been the only method used. It is not uncommon for one man to catch for sale by angling 100 whitefish per day, either through the ice or during open water fishing.

As a result of long-existing legal restrictions, production has never been great. Peak production, in 1895, was just over 300,000 pounds. The commercial catch has included

whitefish, lake trout, carp, cisco, black bass, sturgeon, pike, muskellunge, pickerel, and perch.

4 – LAKES OF SOUTHERN MANITOBA

Winter Fishing

On the Great Lakes there is very little commercial fishing between freeze-up and break-up, but in the rest of inland Canada the winter fishing season has from the beginning been an important part of the commercial fishery. Most of the basic techniques of winter fishing were worked out on the large lakes of southern Manitoba, particularly Lake Manitoba. The methods which are described below are used throughout inland Canada, except on the Great Lakes. Except as noted, methods have changed little since the 19th century.

Winter fishing is carried out by men standing on the ice surface; boats are not required. The first problem is to get a rope under the ice between "basin holes" a net length (about 100 yards) apart. When the ice is only two or three inches thick,⁽¹⁾ a small hole is made with an axe and a long piece of wood with rope attached is put under the ice and shoved smartly in the required direction. The piece of wood can easily be seen through thin ice and a hole is quickly made where it comes to rest and it is again pushed in the required direction. Half a dozen holes may be required in a net length. When the ice is thicker, by which time it is usually snow covered, a more tedious method is used. First, a basin hole about two feet in diameter must be opened in the ice, which is often two or three feet thick and late in the season or some lakes as much as six feet thick. Until recently, basin holes were chopped out by ice chisels or by "needle bars"; a needle bar is a long heavy iron bar which tapers to a sharp point at one end. Since about 1950 there has been a growing tendency to open basin holes by mechanical means; mainly power-driven ice augers, although chain saws are also used in

some places. When the basin hole is finished and the ice fragments scooped out of it, a "jigger" is pushed under the ice through the hole and headed in the required direction. The "jigger"⁽²⁾ is essentially a wooden plank about six feet long to which is attached a simple arrangement of iron levers, such that a sharp pull on the rope attached to the lever system is translated into a thrust against the under surface of the ice, which propels the jigger away from the man who provides the motive power. When the jigger has been propelled a net length in the required direction by a succession of sharp pulls, it is recovered by digging a second basin hole.

Recovering the jigger provides a rope under the ice between two basin holes. This rope is used to pull the gill net under the ice where it is usually allowed to settle to the bottom of the lake. In some cases, extra floats are put on the nets so that the top edge is just below the ice surface. Formerly there was risk that the net floats would freeze to the under surface of the ice. In recent years the practice has been to use inflated toy balloons for floats – they seldom freeze to the ice and when they do, a strong pull breaks them and allows the net to be pulled free.

In order to lift the nets, the basin holes, which have of course frozen over, are reopened and both ends of the net are brought up. A rope is attached to one end and the net is pulled onto the ice through the other basin hole; thus a rope is pulled under the ice for resetting the net. The fish must be quickly untangled from the gill net before net and fish freeze too solidly. They are frequently eviscerated immediately, although this onerous task is done later in a warm place if circumstances permit. Originally, all winter-caught fish were allowed to freeze on the ice, left frozen in piles often for weeks, and moved to market at leisure; this practice is still followed in many places. About 40 years ago, Lake

⁽¹⁾ Before contact with Europeans, the Indians used essentially this method even for thick ice. Prior to the jigger, commercial fishermen used the same method, having adopted it from the Indians via the fur traders.

⁽²⁾ Although there are conflicting claims, it would appear that the jigger was invented in 1898 by John Gavin, a Lake of the Woods fisherman. Several fishermen from Lakes Manitoba and Winnipeg contributed to development of its present form; the last important modification was a noise-making device invented by J.V. Johnson of Gimli in 1927 as a means of locating the jigger when in operation. Since about 1920 jiggers have been standard equipment for winter fishing.

Manitoba fishermen, no doubt encouraged by particularly good rail connections to their lake, began to take special precautions to keep their fish from freezing in the sub-zero temperatures and to ship them unfrozen to market; the unfrozen fish brought a higher price. Fishermen on other lakes have gradually adopted this practice, particularly during the past 15 years, and it is now usual to market winter-caught fish in the unfrozen state where conditions permit.

There have been some recent improvements which have eased the lot of the winter fisherman, but the basic struggle with the elements remains almost unchanged. Winter fishing is always carried out at below freezing temperatures, generally below zero Fahrenheit, not uncommonly at 20 and 30 degrees below zero and sometimes at 40 degrees below. The wind has a clear sweep for many miles over the flat ice surface. The fisherman's hands are wet all the time he is fishing. Few Canadian win their daily bread more painfully.

Lake Manitoba

Commercial fishing started on Lake Manitoba in 1855, in which year almost half a million pounds were taken by a winter fishery. With minor exceptions (all before 1910), it has been entirely a winter fishery using gill nets. In spite of its early beginning, the fishery was relatively small until after 1900. However, during the past 50 years annual production has been substantial, particularly when the size of the lake is considered. Originally the fishery was primarily for whitefish, but by 1920 pickerel had become its mainstay. With the decline in cisco production in Lake Erie, production of Lake Manitoba ciscoes (tullibee) became for a time the second species in terms of quantity produced, although not in value. About 1930 saugers, which until then had been scarce, became a commercial fish of increasing importance, and by 1940 sauger production approached that of pickerel. Between 1940 and 1950 the catch of saugers frequently exceeded that of pickerel. Since 1950 sauger catches have declined and in recent years pickerel has again been consistently the most important species. Whitefish have been of

minor importance since 1930, and rare in recent years. Cisco production in recent decades has been sporadic, dependant on demand rather than supply. Perch and pike have consistently been a minor part of the catch through the years.

Lake Winnipeg

Fish from Lake Winnipeg were an important item in the diet of the Indians, of fur traders and of European settlers who lived on or near the lake. By 1872, if not earlier, some Lake Winnipeg fish were being sold in Winnipeg. The first substantial commercial fishery began in 1882, when one sailboat was used to bring fish regularly to Winnipeg for sale and produced a little over 100,000 pounds. In 1884 the first steam-powered fishing tug (no doubt, much like those on the Great Lakes at the time) was in use. In the same year, for the first time, the amount of fish exported to the United States exceeded local sales. The number of fishing tugs and smaller boats increased rapidly, and ice houses and freezers were built. By 1887 annual production was over 2½ million pounds of which about 60% was exported to the U.S.A. By 1893 there were 30 sailboats and 13 steam tugs in the fishery and the annual catch was almost 4 million pounds.

For most of the history of the Lake Winnipeg fishery, gill nets have been the only fishing gear used, in fact the only gear that could be legally used. Some seines and baited hooks were used in the early fishery and a very limited use was made of pound nets; they were not fished after 1890. A limited number of Lake Erie-type trap nets have been fished since 1960.

The gill nets used have been essentially the same as those described for Lake Erie⁽¹⁾; however, the gill nets used in western lakes have been deeper on the average (i.e., with the net extending farther vertically) than those used in the Great Lakes. Linen web was used until 1914, cotton largely replaced linen during the next decade, and nylon replaced cotton between 1948 and 1950. Three distinct fishing seasons developed at an early date.

The summer fishery has been primarily for whitefish, and mainly in the large northern basin

⁽¹⁾ This statement applies to all gill nets used in northern Ontario and in Manitoba, Saskatchewan, Alberta and Northwest Territories.

of the lake. By 1900 there were a number of wooden-hulled steam tugs displacing 10 to 25 tons from which gill nets were fished. Net pullers were not used; the nets were pulled by hand. Although there were in many cases bunks and messing facilities for a crew of about half a dozen who lived aboard for the fishing season, these tugs were not covered in as were fish tugs on Lake Erie. Many two-masted, wooden-hulled half-decked sailboats about 30 feet long with a crew of three also were used. Early each morning a tug would tow roughly a dozen sailboats to the fishing grounds, then each sailboat and the tug would proceed to the gill nets which its crew had set the previous day. After pulling the nets, removing the fish, and re-setting the nets, the sailboats would return to their home port on their own if the wind was favorable, otherwise they would be towed in by the tug at the end of the working day. In port (or perhaps on their boat while homeward bound) the fishermen would remove viscera and gills from their catch, then sell them in bulk to the operator of the local fish station. The operator either packed the fish in ice for forwarding as fresh fish or froze them at the fishing port by a salt-ice mixture. In either form, the fish were shipped south by freight-boat to the railway by which they were carried to the final market.

Between 1920 and 1930, the sailboats were gradually replaced by gasoline-propelled fishing boats. The practice of freezing fish at the fishing ports declined at the same time, and only unfrozen fish have been shipped for the past 30 years or more. The use of steam tugs was prohibited in 1934, and no vessels comparable in size to the Great Lakes fishing tugs have been used since that date.

The standard fishing vessel since about 1930 has been a wooden-hulled gasoline-powered boat about 40 to 45 feet long, with a beam of 10 to 12 feet, maximum beam well forward, square stern and round bottom. A small deck-house amidship was the only shelter provided. The usual crew was four men including the skipper. For many years nets were "walked in", a rather unique method of pulling by hand. The net was brought aboard over the port or starboard bow, depending on wind direction. One man walked as far forward as practical, grasped the net firmly and facing the bow walked backwards

for about 15 feet. While he was still in motion, a second went forward, grasped the net and began to walk backwards, and so on. The net came in steadily and with a minimum of physical effort. Although the design has remained basically unchanged since 1930, some steel hulls and diesel motors have appeared in recent years. Small net pullers have also been installed within the past decade on most of the boats. Methods of handling the catch have virtually remained unchanged since 1900 or earlier, except that salt-and-ice freezing is no longer used.

Since early in the century, there has been a distinct fall fishing season after the summer whitefish season and before freeze-up, primarily for species other than whitefish and in areas peripheral to the traditional whitefish fishing grounds. By custom and usually by law, the only fishing boats used have been skiffs about 20 feet long. Although the size of this fishery has increased greatly in the past 50 years, methods have remained essentially unchanged since the beginning of the century. Contrary to practice in most Canadian lakes, extra corks are often put on gill nets so that they float with the top edge at the surface; alternatively, a crude method suitable only for use in a small boat is often used to set them at a level intermediate between surface and bottom. Several skiffs are based at each of a number of small fishing stations where the fish, after being eviscerated, are bought by the station operator from the fishermen, then packed in ice for movement to market. About half the catch now leaves the fishing station by freight boats and about half by truck; originally, almost all fish from the fall fishery started its journey to market on a freight boat.

Although there has been some winter commercial fishing on Lake Winnipeg for almost a century, it was a comparatively limited fishery until after 1910. Introduction of the jigger, improved transportation and increased demand have led to a considerable expansion since that time. Until about 1930 most winter fishing was by men who stayed in isolated camps for the winter. Their catch was allowed to freeze, and was kept frozen on the lake often for months until it could be conveniently moved to the railway by horse-drawn sleigh. Between 1930

and 1950 mechanical vehicles replaced horses as a means of bringing fish off the ice. As a result of quicker transportation, a large part of the winter catch from Lake Winnipeg is now kept unfrozen, and many of the fishermen go to the fishing grounds daily from their homes rather than living in camps. The winter fishery is and has been largely for species other than whitefish and mainly on the periphery of the traditional whitefish fishing grounds.

Over the past eighty years average annual production of whitefish has been roughly 3 million pounds; production during the past decade has been consistently less than average. Pickerel was a relatively unimportant species until about 1900, then production increased markedly for two decades, and after 1930 it exceeded whitefish production. Pickerel has usually been the most important species in recent decades. During the past 30 years saugers have become an increasingly important part of the catch, sometimes greater than pickerel. Earlier, sturgeon were taken in substantial quantities, but catch has been negligible in recent decades. For about a decade after 1925, goldeye were an important product of Lake Winnipeg, but the catch has been negligible for the last 30 years. Ciscoes have formed a minor but consistent part of the catch; production has probably been governed by demand rather than by supply. At least 10 other species have had a minor place in the fishery, including burbot, a useless fish in most areas, which in recent years has been produced in substantial quantities for sale to fur farmers.

Lake Winnipegosis

There was a limited commercial fishery on Lake Winnipegosis by 1890. The fishery expanded rapidly after 1897 when the railway reached the lake. One tug and 63 other boats were soon fishing during the open water season, and a sizeable winter fishery quickly developed. In 1906 open water fishing was prohibited; among the reasons given for the prohibition was that the fishermen were paid only 2¢ per pound for summer-caught fish, compared with 5¢ per pound for winter-caught fish. In 1922 fishing during the open water season was again permitted, and a fishery with techniques and equipment much like those used in the Lake Winnipeg whitefish fishery soon developed and

still continues. Relatively more of the total catch has been and is taken during the winter season than on Lake Winnipeg.

The fishery was originally primarily for whitefish. However, whitefish catches have steadily declined since about 1930. Pickerel have always been important in the fishery and have become the principal species during the last three decades. For a few years about 30 years ago, substantial quantities of goldeye were produced; in recent years catches have been relatively small. Suckers, pike, sauger, and perch have been marketed in moderate quantities.

5 - GREAT SLAVE LAKE

Unlike every other major freshwater commercial fishery, the Great Slave Lake fishery is unique in that its history is short and well recorded.

Until two decades ago, the lack of suitable transportation prevented the development of a commercial fishery. One firm was able to overcome this problem by unusual methods. A complete fish processing plant, mounted on several barges, was floated down the Slave River and established in a well sheltered natural harbour on Devil's Channel near Gros Cap. The fish caught were immediately filleted and frozen. The frozen fish were later moved in refrigerated barges to Hay River, trucked to Alberta, from which they were shipped by rail to their final destination.

Commercial fishing began on Great Slave Lake on July 29, 1945. Because of its unique solution to the transportation problem, the company was initially the only fish buyer on the lake, and fishing was at first mainly confined to the fishing grounds near Gros Cap.

The Mackenzie Highway, which connects the settlement of Hay River with the road network of Alberta, was opened to normal traffic in August 1948. Even before the road was open to normal traffic, it was possible to use it in winter and some were shipped over it in January 1947. By 1949, 12 small fish companies had set up facilities at Hay River settlement to buy fish, to pack them in ice, and to ship them unfrozen over the new road. Since that time the number of companies has gradually diminished to four, each of which has grown. The initial producer has not been in business on that lake since 1960.

For the two decades of its history, there have been two distinct fishing seasons on Great Slave Lake. During the winter season, the winter fishing techniques described above have been used. A special consideration has been the extremely short period of daylight in winter, and the consistently low temperatures which eventually make the ice cover five feet thick or more.

During the summer season boats are used. The first fishing boats were 28 feet long, gasoline-powered with wooden hull, carrying crews of two. They were originally built for use on smaller lakes, and were too small for safe and efficient operation on Great Slave Lake. During the influx of new fishermen and fish companies which followed completion of the Mackenzie Highway, a remarkable mixture of fishing boats were brought in from various places in western Canada. More recently, the hodge-podge has disappeared, and most of the large fishing boats seen in recent years have been about 40 feet long with small deckhouses amidships and with crews of three or four. The nets were often "walked in", as on Lake Winnipeg. During the past ten years there has been a steady change-over from wooden to steel hulls and from gasoline to diesel motors. Also recently, many of the boats have been equipped with net pullers and echo sounders. However, there has also been a tendency in the past ten years to develop one-man fishing boats, a 20-ft. skiff with outboard motor.

The only fishing gear used has been gill nets. The first fishermen used nets with quite heavy cotton twine in the web. The fishermen who came later used a finer twine, also of cotton. A few nylon gill nets were used for the first time in 1950. By 1952 all the "new" fishermen were using nylon only, but most of the fishermen continued to use cotton nets at least as late as 1954, making them perhaps the last sizeable group of inland commercial fishermen in Canada to retain the less efficient gear.

The rapid influx of fishermen which followed the opening of the Mackenzie Highway resulted in a production of over 9 million pounds of fish in 1949. Then, as exaggerated preconceptions of the fish bonanza dissipated, the number of fishermen declined. Because less fishing was done and because catch per net decreased moderately (an expected and inevitable result of fishing),

the lake has never since produced as much as in 1949. It has also produced much less than the sustainable annual crop of fish which could be harvested because, at the prices that have been paid for fish on the lake, it has so far only been profitable to take that part of the fish crop which could be harvested most economically.

The catch has consisted mainly (90 to 95%) of whitefish and trout. Inconnu, although of minor importance, are of interest because they are not produced commercially in any other Canadian lake. Pike and pickerel are also taken.

6 - SMALL AND/OR REMOTE LAKES

General

Although the Great Lakes, the three large lakes of southern Manitoba and Great Slave Lake together provide the lion's share of the Canadian freshwater commercial production, a substantial part, particularly of high-priced lake trout and whitefish, come from several hundred other lakes, mainly in the Prairie Provinces. They range in size from lakes hardly bigger than ponds to Lake Athabasca and Reindeer Lake, each of which are larger than Lake Manitoba. Total annual catches have ranged from less than 1000 pounds to more than 2.5 million pounds per year. Sustainable annual yield varies from less than half a pound per acre to more than 30 pounds per acre. Each lake differs from every other lake in physical, chemical and biological characteristics.

But all are either relatively small, or relatively remote, and many are both. In spite of their differences, the fisheries of these lakes have much in common, and it is logical to group them for purposes of discussion.

Prairie Provinces

Commercial fishing began about 1885 in a chain of small lakes in the Qu'Appelle Valley, also in Last Mountain Lake. It is no coincidence that it developed immediately after the railway and settlers reached the Qu'Appelle Valley.

As the railway network spread and as the land was settled, more and more lakes were fished commercially. There were substantial fisheries on some of the smaller lakes in southern Manitoba by 1887. Commercial fishing began in several

lakes near Prince Albert in 1888, although the fishery was of little consequence until 1900. By 1892, there was a commercial fishery on some of the small lakes near Edmonton, and by 1893 fish were being produced from several lakes in the vicinity of North Battleford, also from Lac la Biche and neighbouring lakes. Shortly after 1900 fishing began on several lakes near The Pas, including Cedar and Cumberland lakes. Commercial fishing began on lesser Slave Lake about the same time. By 1910 most of the suitable lakes in Saskatchewan and Alberta, as far north as Latitude 55° (or 56° in some cases), had been fished commercially for at least one season, and a majority still were fished. By 1920 lakes as much as 100 miles north or northwest and 200 miles northeast of The Pas were fished commercially. Commercial fishing began in Lake Athabaska in 1920, was soon discontinued and resumed on a more permanent basis in 1926. As transportation improved, particularly after caterpillar tractors and aircraft came into common use, the area within which there was commercial fishing extended even farther. By 1950 lakes were being fished even in the most northerly parts of the Prairie Provinces, and intervening lakes have been steadily added to the list since that time.

Meanwhile, in many of the lakes in the farmlands area commercial fishing has been restricted or prohibited during the past half century. On the other hand, the construction of reservoirs in southern Alberta has in recent years created some very productive commercial fishing waters.

The fishing gear has been, almost without exception, gill nets. Initially, most of the lakes were fished in winter using the techniques described for the large Manitoba lakes. Below freezing weather, which normally prevails during the winter season, was the factor which originally made it practical to fish the more remote lakes. The fish were allowed to freeze and were kept on the lake until it was convenient to move them. Frozen lakes, ponds and muskeg plus snow in the wooded areas made it possible to move frozen fish where roads in the usual sense did not exist. For many years winter-caught fish were hauled by horse and sleigh from the lakes to the nearest railway; dog sleds were sometimes used for short hauls. When trucks became available, they were

used where circumstances permitted. After 1930 caterpillar tractors, each pulling several sleighs, were used increasingly; in some places farm tractors were used in the same way on short hauls. Between 1945 and 1960, snowmobiles largely replaced caterpillar tractors for moving fish overland. Aircraft have played a minor but increasing part since about 1930. During the past twenty years, particularly during the past decade, there has been a growing tendency to keep the fish unfrozen and to move them quickly to market rather than to let them freeze and then move them when convenient.

Open water commercial fishing was originally confined almost entirely to lakes that were closest to railways; the eligible lakes have gradually increased in number as the railway network developed, particularly when new lines were laid north of the farmlands. Since about 1920, new roads also had the same effect whenever they were built. During the past decade, air transportation has made it possible to fish some of the more remote lakes during the open water season.

The original fishery was on relatively small lakes, so canoes and rowboats sufficed for open water fishing. Sailboats were used for a short time on Lesser Slave Lake, but were replaced by gasoline-powered boats shortly after 1920; sailboats were not used elsewhere. The fishing boats used since 1920 have varied greatly in size and other characteristics, but in general they have been either wooden-hulled boats roughly 30 feet long powered by inboard gasoline motors, or skiffs roughly 20 feet long with outboard motors, or freighter canoes with outboards. There has been nothing comparable to the fishing tugs of the Great Lakes. Mechanical net pullers have only been used during the past decade and then only to a limited extent.

Whitefish have constituted the bulk of the catch. Lake trout, pickerel and pike have also been important species. Sturgeon and goldeye, because of the high price per pound, have been important in some areas. Cisco production has been substantial on occasion; it could be increased tremendously if there was a demand commensurate with supply. Buffalo have recently become of local importance in some of the more southerly prairie lakes. Several other species have also been taken.

An unusual fishery has recently developed on Little Lake Manitou, near Watrous, Saskatchewan. The lake, which has no outlet, is more salty than the ocean and freshwater fish will not survive in it. However, it produces a heavy crop of ¼-inch-long crustaceans known as brine shrimp. In recent years about a dozen outboard-powered, two-man boats have fished brine shrimp using small tow nets. The catch has averaged close to one hundred thousand pounds per year. It is processed in Watrous and sold as aquarium fish food, mainly in New York.

Northern Ontario

There was a commercial fishery on Lake of the Woods and on Rainy Lake in 1893, probably earlier. For some time the fishery on these lakes, and in other waters which form the international boundary west of Lake Superior, was the only one in northern Ontario. Commercial fishing licenses for Lac des Milles Lacs and for Whitefish Lake were issued in 1908. In 1916 legal restrictions were relaxed and fishing began immediately on several other lakes. There has been a steady increase in the number of lakes fished during subsequent decades. Most of them have been comparatively small and the bulk of the production has been from a few of the larger lakes: Lake of the Woods, Rainy, Seul, St. Joseph, Temiskaming, and Abitibi.

Gill nets have been the most commonly used gear. Although the winter fishing methods developed in Manitoba have been used in many cases, most of the production has been from open water fisheries, using methods intermediate between those of the Great Lakes and those of the Prairie Provinces. Pound nets were first used on Lake of the Woods in 1893, and a few were used consistently there and in some other northern Ontario lakes until about 1950, then there was a change to trap nets and the number of trap nets now used exceeds the number of pound nets used before 1950. Hoop nets and seines have also been used to a limited extent.

In the early history of many of the lakes, sturgeon was an important, often the most important species, but in each lake sturgeon became scarce soon after fishing started. Since about 1900 whitefish have been consistently the most valuable species, with pickerel a close second.

Considerable quantities of pike have also been caught. Lake trout have been a minor species. In recent years goldeye have been produced from a few lakes. Several low priced species have collectively formed a substantial part of the catch through the years.

Yukon

Tens of thousands, sometimes hundreds of thousands, of pounds of fish have been taken annually from the lakes and rivers of the Yukon Territories since 1898. However, almost all of it has been consumed within the Yukon Territories. The important species have been whitefish, lake trout and cisco, and gill nets have been the usual gear. Limited quantities of spring and chum salmon and other species have been caught in the Yukon River near Dawson, mainly by "fish wheels", a unique type of fishing gear, essentially a current-driven paddle wheel with a few dipnet-like projections which dip into the water during each rotation and scoop up any fish encountered.

Northwest Territories

In the early days of the Great Slave Lake commercial fishery, several fishermen illegally fished adjacent lakes and marketed their catch as Great Slave fish. There were also abortive attempts to fish Kakisa Lake in 1947 and Neultin Lake about 1949. The first substantial commercial fishery in the Northwest Territories, exclusive of Great Slave Lake, was on Kakisa Lake starting in 1953. In 1954 three additional lakes near Great Slave were fished plus a fourth in 1955. There was no further expansion until 1960, when eight lakes near Great Slave were fished. Since 1960 the number of lakes fished by men based at Hay River has steadily increased, the furthest being 300 miles away. Within the past five years a limited fishery based on Lynn Lake, Manitoba, has developed in a few lakes north of Manitoba, and of eastern Saskatchewan.

The gear used has been gill nets. The fishery has been mainly through the ice, but a substantial part has been carried out during the open water season from skiffs with outboards and canoes. The fish have been moved mainly by snowmobile in the case of lakes near Great Slave, or by air in the case of more remote lakes. Because of a new road, fish have been trucked from Kakisa Lake for several years.

Most of the lakes have produced mainly whitefish and lake trout. Kakisa and Tathlina Lakes have produced mainly pickerel. The pro-

duction from all the lakes combined has been small compared with Great Slave Lake.


(Fig. 20.) Lifting a pound net. By overhauling the web, the fish have been herded into a restricted part of the crib from which a fisherman is scooping them aboard with a dip net.



A very faded, low-contrast black and white photograph of a fishing tugboat on a body of water. The tugboat is positioned in the center-right of the frame, moving towards the left. It has a prominent, boxy superstructure or deckhouse on its upper deck. Long, thin lines, presumably gill nets, extend from the tug across the water towards the left side of the image. The water surface is calm with some subtle ripples. The background is a light, hazy expanse, likely the sky or distant shore. The overall image quality is poor, with significant fading and loss of detail.


(Fig. 21.) A Great Lakes fishing tug pulling gill nets. Notice characteristic deckhouse.





(Fig. 19.) Looking forward along the port side of a Great Lakes fishing tug whose mechanical net puller is in operation. The gill net with fish in it comes aboard over a roller (which is kept in board except when fishing) and around the puller head (waist high and left of fisherman) to a fisherman who is coiling it in a net box. When net box is full it is pulled after where fish are removed.





Fisherman removing fish (perch) from gill nets aboard a Lake Erie fishing tug. Nets with fish entangled in them have been piled in boxes and taken after. Fisherman pulls net across his lap untangling each fish as he comes to it. Note crushed ice on each box to maintain fish quality.



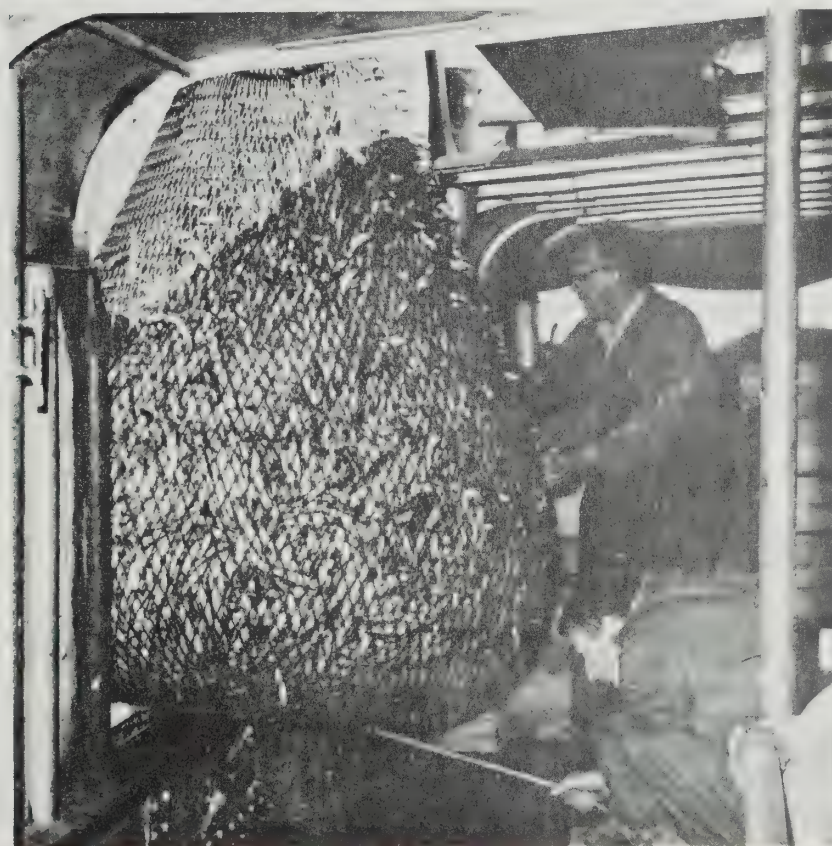
Fisherman using dip net to scoop fish from the crib of a trap net. The opening through which the fish are removed is laced up when the net is fishing.





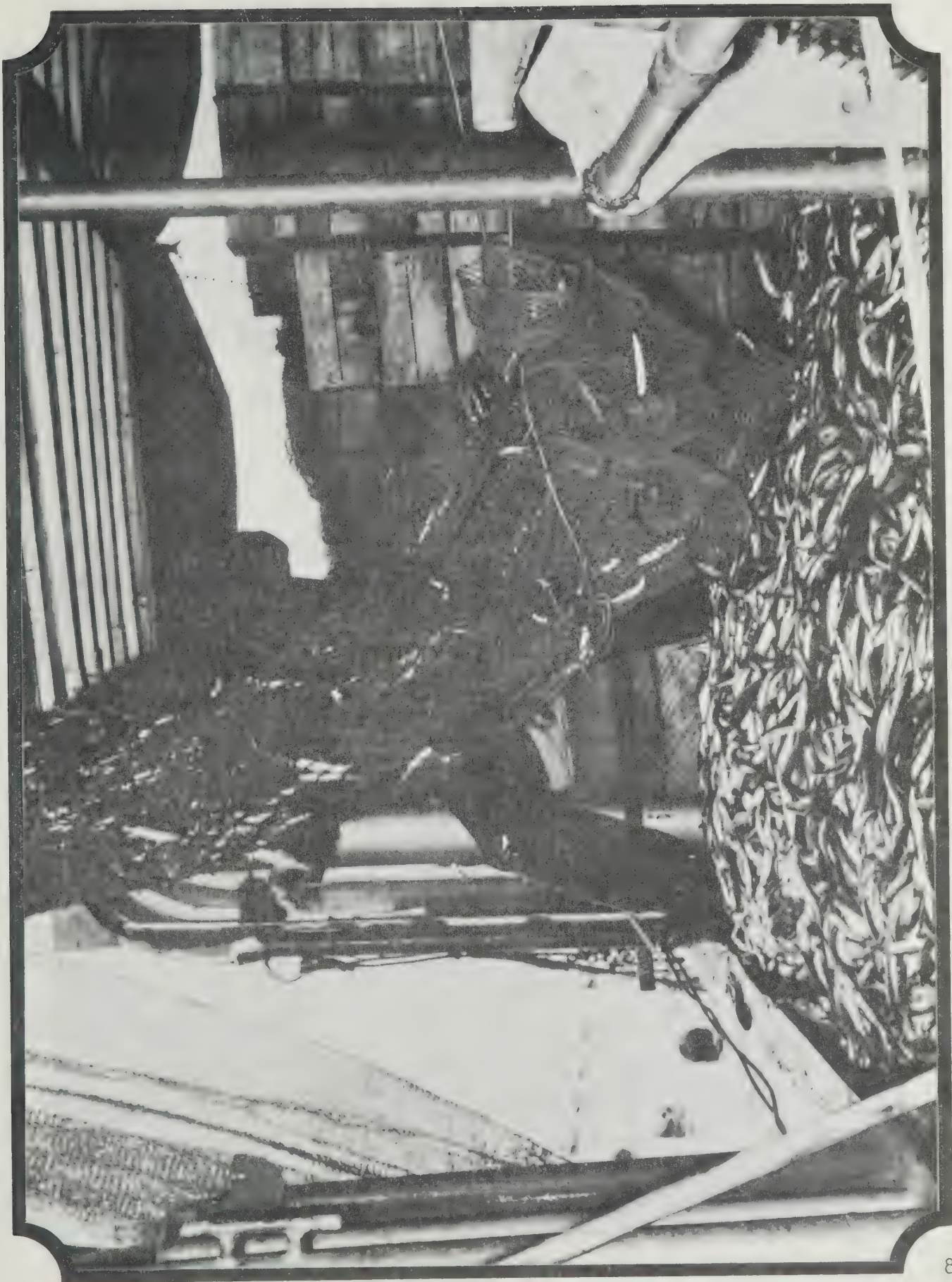
Cod end of a trawl, full of fish, being hoisted aboard a Lake Erie gill-net tug which has been altered for trawling. Most of the trawl is still in the water; note floats left foreground.

Taken shortly after Photo 1. Cod end has been swung over deck. Man at lower right is ready to pull rope which will open cod end and allow fish to spill out.





Taken shortly after Photo 2. Fish (mainly smelt) have been spilled from cod end onto deck.



Winter fishing. Two cabooses on the ice several miles offshore. In many areas winter fishermen live for weeks at a time in such cabooses, generally two or three men in each.

Winter fishing. Fishermen removing fish from gill net. Note fish removed earlier scattered over ice, and small tree thrust into snow to mark location of basin hole.



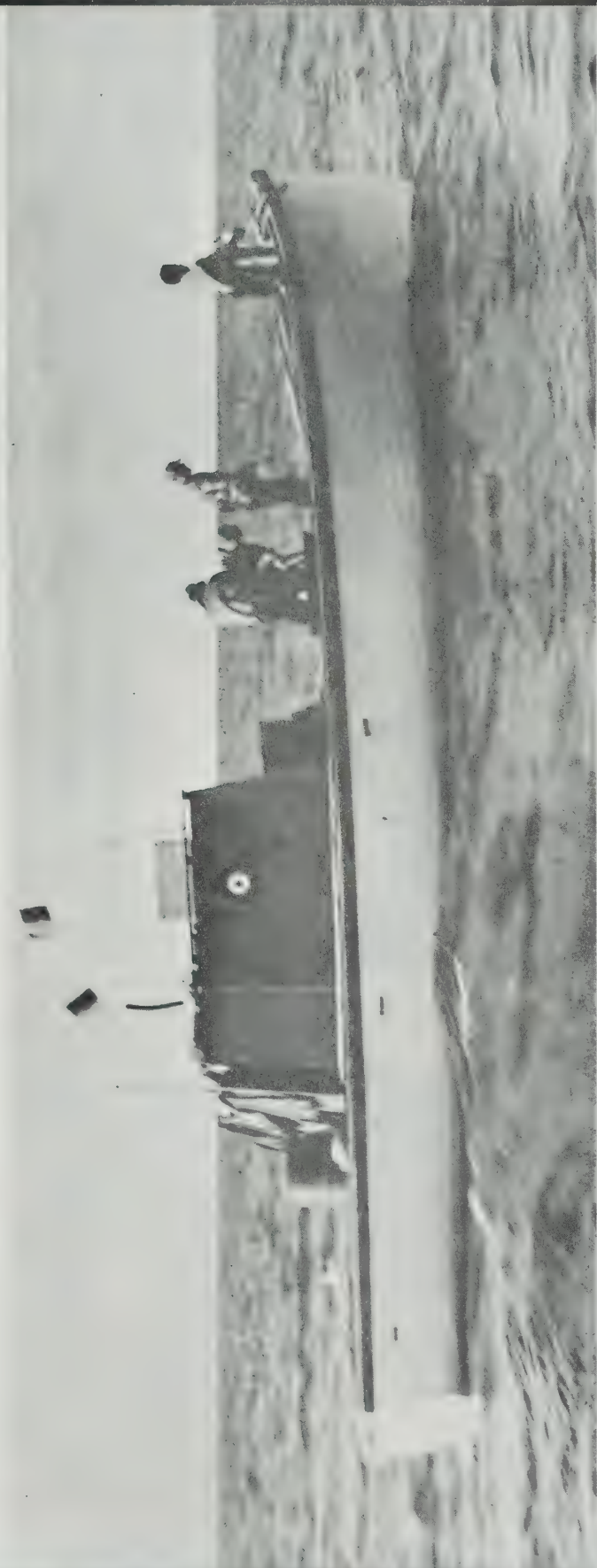
Winter fishing. Setting the gill net. Basin hole in middle foreground, needle bar to left, front end of snowmobile further left.



Lake Umbagog, N. H. Gill-net boat. Gill net is being walked in over starboard bow.



Lake Winnipeg type of gill-net boat. Gill net is being walked in over starboard bow.



Small fishing boats typical of those used for commercial fishing in the smaller remote lakes of northern Canada.



IV-MARKETING CANADIAN FRESHWATER FISH

From the outset of my inquiry into the freshwater fish industry, it was apparent that markets and marketing problems concerned the fisherman deeply. In this section, I intend to describe the marketing of freshwater fish. Also it is my purpose to outline the problems which I believe are of concern today in the marketing of Canadian freshwater fish, and to give you my views on these problems.

Marketing is the movement of goods from producer to consumer. In this inquiry, we are concerned with the movement of freshwater fish, produced in the provinces of Ontario, Manitoba, Saskatchewan, Alberta and the Northwest Territories. Also my inquiry deals primarily with the forces affecting the export movement of fish, because most Canadian freshwater fish is consumed outside Canada.

Before the fish reaches the consumer, many people handle it. The fish may be processed in several ways; it may be bought and sold a number of times; and it may cover great distances. In other words, in this section, I will deal with (a) how much fish is produced, (b) where it is marketed, at what price it is marketed, and in what form it is marketed; and (c) how it is marketed and by whom.

A. PRODUCTION

The Canadian freshwater fish industry markets annually over 100 million pounds ⁽¹⁾ of fish. This total consists of commercial quantities of some twenty species of fish. The total catch is produced by some 9,000 fishermen, from over

400 lakes. These lakes vary in size from Lake Superior, 31,820 square miles, 11,110 in Canada, to a few which are less than one square mile, and are stretched out over three thousand miles. Production is therefore, characterized by low volume producers, both in terms of lakes and fishermen, and by decentralization.

Fragmentation of production has an adverse effect on cost of catching, assembling and transporting fish. On the other hand, it has a favourable result in levelling out production from year to year. Annual fluctuations normally are less than 10 percent of the level of the preceding year. The total supply of freshwater fish available for marketing shows a desirable element of stability.

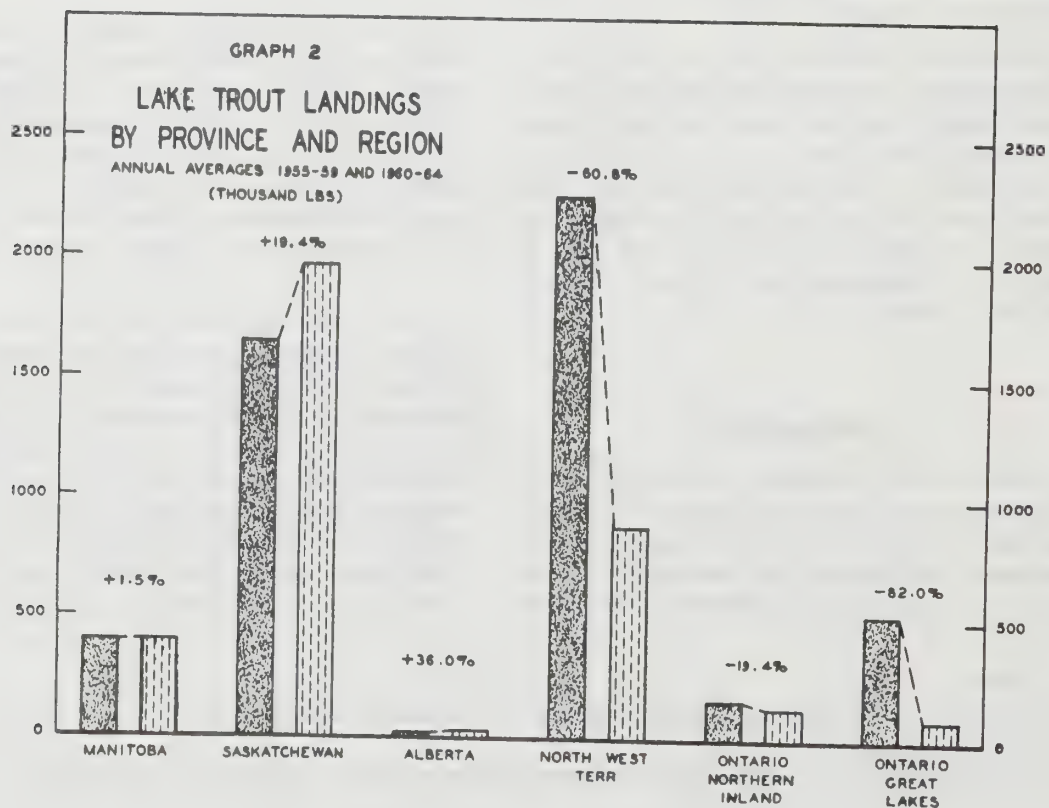
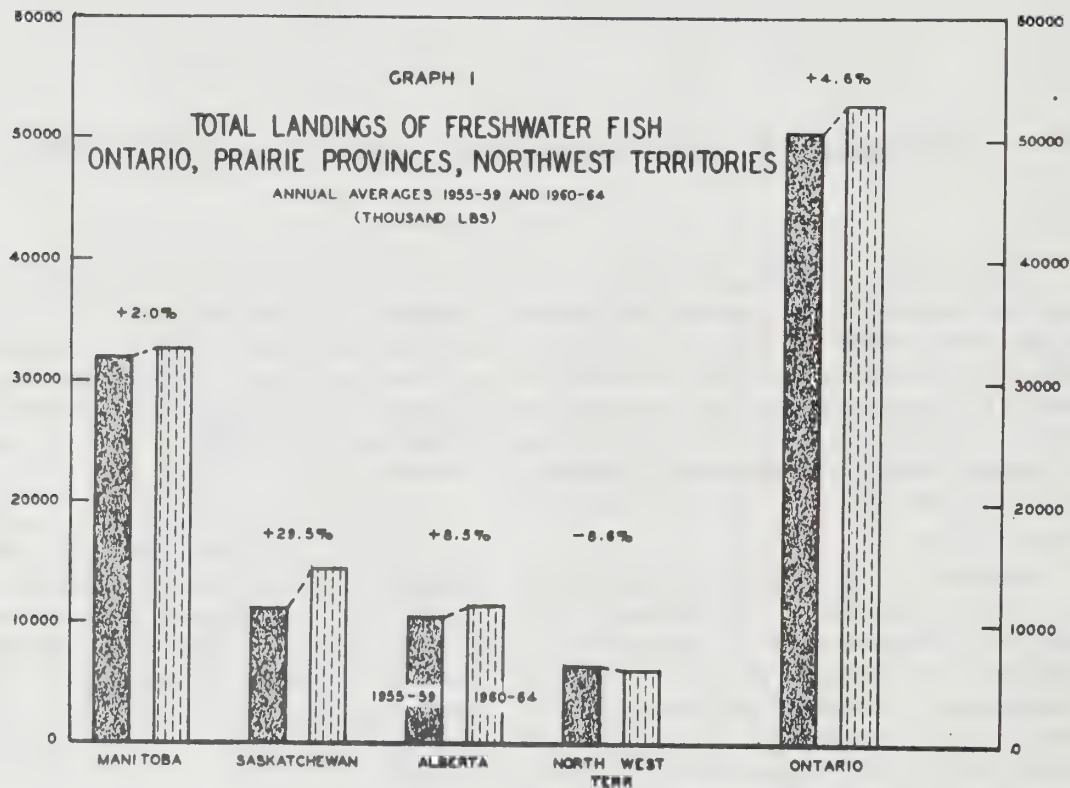
Total production of freshwater fish has shown a slight upward trend. Comparing the annual average for the years 1955-1959, with that for the years 1960-1964, landings increased in each of the four provinces, especially in Saskatchewan. Only in the Northwest Territories, largely from Great Slave Lake, is there evidence of a downward trend during the past decade.

While overall production has shown little change, important shifts have occurred in the total and regional importance of certain species. *Blue pickerel* of which the catch in 1956 amounted to 12 million pounds, is no longer commercially important.⁽²⁾ Found mainly in Lake Erie, the decline of blue pickerel can be attributed to environmental changes,⁽³⁾ which have taken place in that lake, not the least of which is pollution. Landings of *yellow pickerel*, a separate but

⁽¹⁾ This includes some species of sea fish caught inland such as smelt and eel.

⁽²⁾ See Appendix Table 5.

⁽³⁾ H.C. Frick; *Economic Aspects of the Great Lakes Fisheries of Ontario*, Fisheries Research Board of Canada, Ottawa, 1965, Page 1.



closely related species, have also declined. ⁽¹⁾ Again the reduction in output took place entirely in Ontario, as other main producing areas increased their production of this species. The Great Lakes, notably Lake Erie, were wholly responsible for the smaller catch of yellow pickerel. Northern Ontario expanded its output of this species.

In total, the landings of pickerel, blue and yellow, decreased from an average of 24 million pounds in 1955-1959 to 14 million pounds during the period 1960-1964, a drop of more than 40 percent. The Great Lakes which during the first five years accounted for over 50 percent of the marketable supply, provided only 12 percent of the Canadian total during the last five years. The other regions, including Northern Ontario, consequently produce close to nine-tenths of Canadian pickerel supplies. ⁽²⁾ In relation to total freshwater fish production, the relative importance of pickerel has dropped sharply from 20 percent to 12 percent.

Whitefish is now the most important species for the freshwater fish industry. The catch averaged 26 million pounds during the period 1960-1964, which was 9 percent more than the average during the preceding five years, and accounted for 22 percent of the total freshwater fish land-

ings. Provincially, only Alberta and Ontario showed a downward trend in production. Manitoba and Saskatchewan each supplied 28 percent of the total during the years 1960-1964, and the Northwest Territories, Ontario and Alberta 17 percent, 14 percent and 13 percent respectively. ⁽³⁾

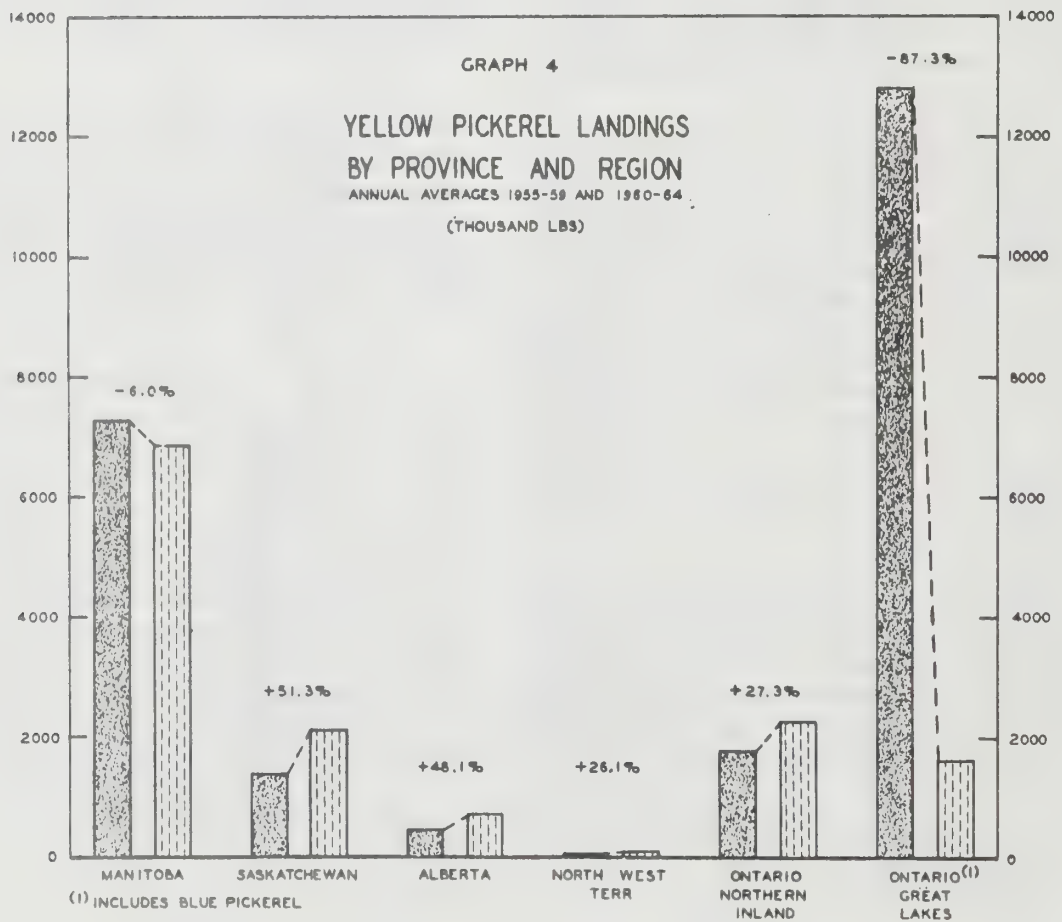
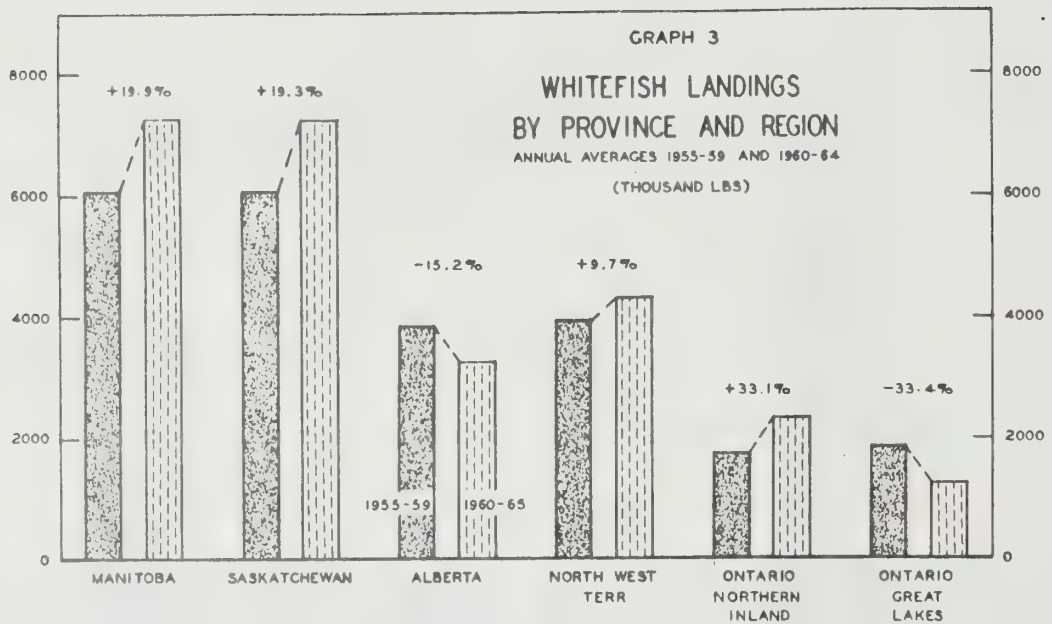
Within Ontario, the Great Lakes and Northern Ontario again show sharply diverging trends. Whitefish production on the Great Lakes has declined substantially, and represents less than 5 percent of Canadian production. On the other hand, Northern Ontario whitefish output has increased substantially and now accounts for one tenth of all Canadian whitefish marketed.

In the inland fishery in western Canada and Northern Ontario, over one third of the catch is whitefish. The dependence on whitefish is even greater in certain localities. Over seventy percent of the freshwater fish from the Northwest Territories is whitefish. In Saskatchewan, the entire fishery, increasingly in the northern part of the province, depends on whitefish for half of its total catch. Fishermen on the northern lakes in Manitoba, where 80 percent of that province's whitefish are landed, are also heavily dependent on the whitefish market, because that species represents 50 percent of their overall catch.

⁽¹⁾ See Appendix Table 5.

⁽²⁾ See Appendix Table 4.

⁽³⁾ See Appendix Table 3.



The commercial catch of *lake trout* has declined sharply during the past ten years.⁽¹⁾ The most spectacular and well-known decline has occurred in Ontario. The lake trout at one time the king-pin of the freshwater fishery on Lake Superior and Lake Huron, is no longer significant because of the destructive effect of the lamprey on the adult trout population. As late as 1950, the Great Lakes accounted for 35 percent of total Canadian lake trout supplies; at present for less than 3 percent. Lake trout production in the Northwest Territories also shows a drastic downward trend. The only significant growth in trout production has occurred in Saskatchewan. This province is now the main producer of lake trout accounting for over 50 percent of total Canadian supplies.

Landings of *Pike* averaged 8 million pounds during the 1960-1964 period, comprising some 7 percent of the total freshwater fish catch. The volume marketed of this fish has shown a moderate upward trend.⁽²⁾ All producing areas contributed to this expansion, with the exception of Manitoba, which is the main producer. This province, however, still supplies over 50 percent of total pike landings. Saskatchewan, Alberta and Ontario each account for between 10 and 20 percent. Ontario landings are confined almost entirely to Northern Ontario.

The Canadian freshwater fishery also landed an average of 4 million pounds of *sauger*.⁽³⁾ Sauger is a species of freshwater fish related to pickerel, and, except for small quantities from Northern Ontario and Lake Superior, is limited to Manitoba, particularly Lake Winnipeg. This fish, relatively insignificant for the freshwater fish industry as a whole, accounts for some 15 percent of the total Manitoba catch of freshwater fish, and represents some 40 percent of the Lake Winnipeg production. Sauger production has shown a slight downward trend.

The catch of *perch*, *smelt* and *white bass* has increased substantially during the past ten years. These three species combined have accounted for as much as one third of total landings of freshwater fish. Perch is the most important followed by smelt and white bass. Except for small commercial quantities reported for Manitoba and Saskatchewan, these species are landed in Ontario, almost in their entirety from the Great Lakes, and mostly from Lake Erie. Great Lakes production rose from 12 million pounds in 1955 to 24 million in 1964.⁽⁴⁾ As the catch of blue and yellow pickerel, lake trout and whitefish fell off, the production of perch, smelt and white bass rose. In relation to Lake Ontario and especially Lake Erie, there is evidence to suggest that the very factors which caused the diminution in the catch of the former, encouraged the expansion of the catch of the latter species.

The Canadian catch of *cisco*, (*lake herring*, *chub* and *tullibee*) amounts to approximately 10 to 15 million pounds annually,⁽⁵⁾ and therefore, represents around 10 percent of all freshwater fish landings. Lake herring is caught mostly in Lake Superior. Alberta is the more prominent producer of tullibee.⁽⁶⁾ Ontario is the main producer of chubs,⁽⁷⁾ mostly from Lake Huron. The Ontario catch of chubs has expanded rapidly over the past decade.

There are a number of other species which are commercially desirable, such as *sturgeon*, and *goldeye*. In terms of landings, these species have not at any time been significant.⁽⁸⁾ These fish will continue to be exploited because of special demand factors.

The remainder of the freshwater fish caught falls into a broad grouping called "rough fish".⁽⁹⁾ Included here are buffalo fish, sucker, redhorse, carp, catfish and burbot. Normally rough fish is a by-product from fishing for the other species.

⁽¹⁾ See Appendix 2.

⁽²⁾ See Appendix Table 6.

⁽³⁾ See Appendix Table 7.

⁽⁴⁾ See Appendix Table 8.

⁽⁵⁾ See Appendix Table 9.

⁽⁶⁾ Alberta landings actually consist of several species of cisco collectively known as tullibee.

⁽⁷⁾ Besides lake herring, the Great Lakes produce several species of cisco collectively referred to as chubs.

⁽⁸⁾ See Appendix Table 10.

⁽⁹⁾ See Appendix Table 11, 12 and 13.

The volume of rough fish marketed nevertheless amounts to some 15 million pounds, or better than 10 percent of the total Canadian catch. While this is not an insignificant proportion in volume, the value of this fish does not have any economic significance for the industry as a whole. For a number of individual fishermen, however, these species defray a substantial portion of their fishing expenses.

The preceding survey indicates that pickerel, whitefish, lake trout, pike, sauger, perch, smelt and bass are the backbone of the freshwater fish industry in Canada. For these species, landings have during the past ten years taken on a more marked regional concentration. This has resulted primarily from changes in the Great Lakes fishery. In 1955 and 1956, more than half of the Great Lakes catch was made up of pickerel, blue and yellow, lake trout, whitefish, northern pike and sauger. By 1964, the relative importance of these species in the Great Lakes catch had fallen to less than 10 percent. In addition, whereas previously the northern inland region of Ontario was a comparatively insignificant factor in the overall availability of yellow pickerel, whitefish, pike and lake trout in that province, at present this area supplies well over half of the provincial total.⁽¹⁾ On the other hand, the dependence of the Great Lakes fishery on perch, smelt and bass has increased greatly;⁽²⁾ so much in fact that these species account for over 90 percent of the Lake Erie catch. For the freshwater fish industry of Canada as a whole, these developments have had two major results as regards availability of supply. First, the Great Lakes produce almost the entire catch of perch, smelt and bass. Second, the supply of pickerel, whitefish, sauger, pike and lake trout is confined principally to the Prairie Provinces, the Northwest Territories and the northern inland region of Ontario.

The landed value of the catch of freshwater fish in 1964 was 12 million dollars. The total amount received by Canadian inland fishermen for their catch has declined during the past decade.⁽³⁾ This reduction was caused solely by lower earnings in the province of Ontario; es-

pecially in the Great Lakes fishery where an increasing proportion of the total catch consists of low-priced perch, smelt and bass, and where the catch of high-priced lake trout, pickerel and whitefish has fallen off sharply. The returns to the fisherman in the western inland fishery have generally shown an upward trend, especially in Saskatchewan.

What about the future of the freshwater fish industry? There is substantial biological evidence that a greater production of freshwater fish is possible on a sustained basis. This is not assurance however that potential output will be realized. In fact, in my judgment, this will almost certainly not be the case, unless there is a reversal in the course of a number of developments, which have affected production adversely in recent years.

Production depends in part on the number of lakes which are fished commercially. This number increases as new lakes are opened, and decreases as old lakes are closed to commercial fishing. The opening and closing of lakes, while under federal jurisdiction, is regulated and administered by the provinces. Lakes are closed to commercial fishing mostly because they are required for sport fishing by the tourist industry. I am of the opinion that this practice in the past has been wasteful of Canadian freshwater fish resources. It may be true, as some suggest, that a lake will realize a greater return to the economy by sport fishing than by commercial fishing. In any case, it appears to me that these two forms of fishing need not be entirely exclusive. In fact there are grounds for believing that a combination of these two forms of utilization, as applied to different species in the same lake, would be beneficial biologically.

The problem of combining these two forms of fishing assumes additional significance and urgency when one considers that lakes closed to commercial fishing are generally closer to the market than virgin lakes. In other words, adding newly opened virgin lakes on the one hand, and closing lakes to commercial fishing on the other hand, has pound for pound, a negative impact on the average net income of the

⁽¹⁾ See Appendix Table 14.

⁽²⁾ See Appendix Table 15.

⁽³⁾ See Appendix Table 1.

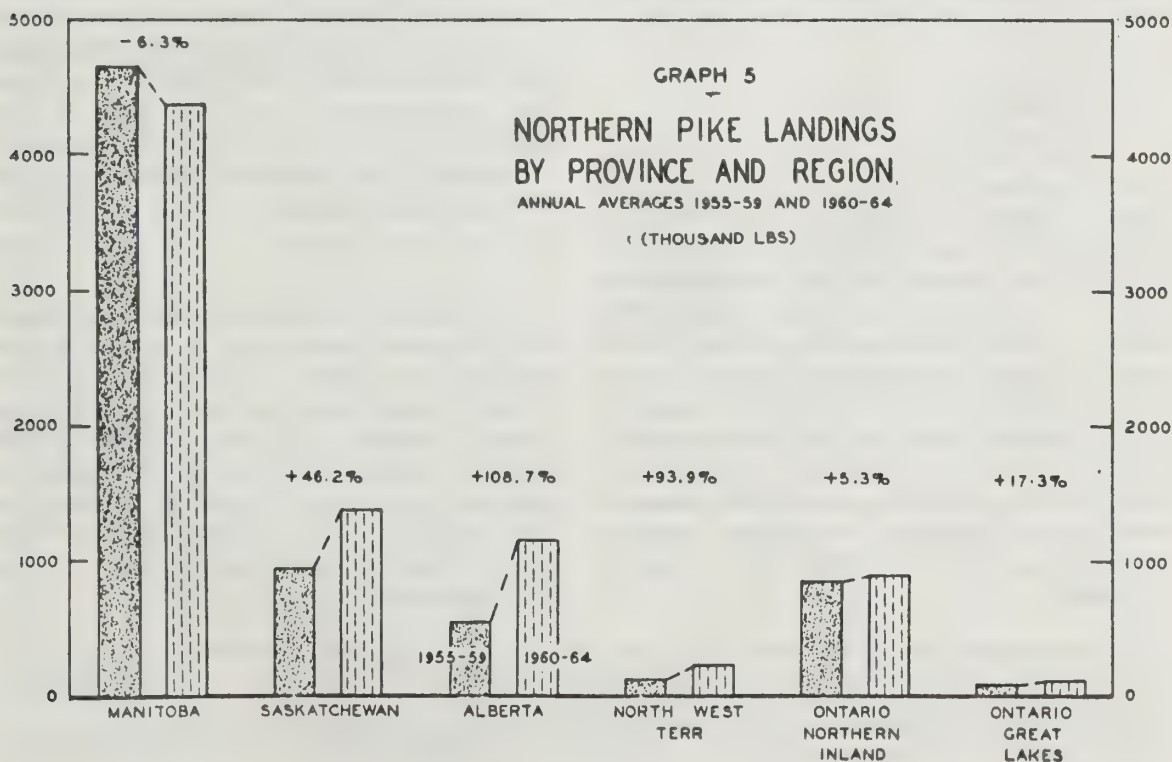
freshwater fisherman. The benefit to the fishermen will be great if the promotion of tourism and sport fishing does not restrict commercial fishing.

Pollution is another factor which has an adverse effect on the freshwater fishery. This is amply supported by the evidence brought before me. Certainly the biological potential of Canada's freshwater fish resources will not be realized if pollution of our inland lakes continues unhindered. Further pollution must be stopped, and waters presently polluted must be cleared. Canada's greatest asset, in my judgment, is pure unadulterated water. Yet year by year, Canadians are carelessly destroying this priceless heritage. I feel that it is my duty to say that while the terms of reference of this Commission are chiefly concerned with marketing that the evidence before my Commission clearly establishes the disastrous effect on the Canadian fisheries resulting from pollution. Moreover, it may not be sufficient from the viewpoint of the freshwater fish industry if preventive action entails making water fit for human consumption only. The waters should be fit biologically for

fish as well. Anti-pollution measures should also serve the needs of the freshwater fishery.

Changes are required in the regulations and attitude concerning sport fishing versus commercial fishing and those relating to pollution. A new progressive outlook in each of these areas of controversy will enhance the possibility of realizing potential output. This is certainly true for those species which have readily available markets at present. This would apply, however, even more if markets could be found for "rough fish". Waste and underutilization of the available stocks of rough fish have been particularly marked in the past, because these species lack volume markets which yield the fisherman an acceptable return. I feel that every effort should be made to develop markets for rough fish, since it is in this area that probably the greatest gains in landings can be achieved.

It is self-evident that even the most radical solutions to the problem areas outlined above will be of little consequence in terms of maintaining or increasing output if the fisherman cannot obtain a satisfactory livelihood from fishing.



This will eventually involve redressing the structural imbalance which exists today in the freshwater fishery; namely too many fishermen in relation to available fish stocks, using more productive equipment. The solution to the industry's current marketing problems will be of more immediate benefit. It should be realized however, that the gains from the latter in terms of income to the fisherman, will be modest in comparison with those to be obtained from the rationalization of the fishery.

B. MARKETS AND PRICES

Landings of freshwater fish amounted to 105 million pounds in 1964. Of this amount an estimated 85 million pounds, more than 80 percent, was marketed outside Canada and 20 million pounds were sold domestically. This means that each Canadian on average consumes a little better than 1 pound of freshwater fish, landed weight. In product weight, this would amount to 0.6 pounds compared to total per capita consumption of fish and shellfish in Canada of about 14 pounds. Freshwater fish is therefore not an important proportion of the total fish diet of the average Canadian.⁽¹⁾ It is also self-evident that the freshwater fish industry is foremost an export industry.

1. Export Demand:

Canada exported in 1964 freshwater fish products valued at 22 million dollars. These exports consisted of 45 million pounds of round or dressed fish and 16 million pounds of fillets.⁽²⁾ It can be seen that the Canadian freshwater fish industry, although comparatively small in total output, is an important participant in Canada's export trade. Moreover, since this industry, in addition to the non-commercial catch, satisfies nearly all of Canada's freshwater fish needs, and because the industry imports little of supplies and materials, therefore the Canadian freshwater fish industry makes a significant positive contribution to our balance of trade.

Exports of pickerel, sauger, pike, whitefish and lake trout totalled almost \$14 million, and were made up of 26 million pounds in the round or dressed form, and 8 million pounds in fillets. It can be seen that these five species account for over half the volume of freshwater fish exported and for two-thirds of the total value of freshwater fish exports. Canada exported 14 million pounds of perch, smelt and bass in 1964, which realized 3 million dollars.

Exports account for most of Canadian landings of each of the important commercial species. The degree to which sales depend on export markets can only be approximated, but for pickerel, sauger and northern pike, it appears that well over ninety percent of the commercial catch is exported. With the exception of small shipments of pike and whitefish to Europe, United States importers account for the entire export movement of these species. Of the total landings of whitefish, around 80 percent goes to the United States. This implies that the dependence of this species on the domestic market is greater than for pickerel, sauger and northern pike. However, domestic consumption is limited mostly to "B" whitefish, or whitefish infected with *Triaenophorus crassus*, which are unacceptable to the United States Food and Drug Administration for consumption in the United States. Canadian consumption of "A" whitefish, that is whitefish acceptable for export is negligible. Consequently, the whitefish fishery is dependent on export markets as much as the other above-mentioned species.

The proportion of the Canadian catch of lake trout consumed domestically is greater than for any other major species of freshwater fish. Sales to the United States, our major customer, represent normally some sixty percent of total Canadian production. Perch, smelt and bass, the important species in the Lake Erie fishery, are also marketed almost entirely in the United States. Domestic consumption is again of little economic significance.

⁽¹⁾ The relative importance of freshwater fish is understated here to the extent that the catch of sport fishing is not included. The average Canadian consumes more freshwater fish than indicated above, but the additional consumption is not a product of the commercial inland fishery.

⁽²⁾ This is on a product weight basis. In other words, 85 million pounds of fish supplied by the fisherman was processed into fish products weighing 61 million pounds; see Appendix, Table 21.

The Commission estimates that most of the 15 million pounds or so of rough fish produced in Canada is exported as well, the United States being again Canada's main customer. Exports and production are however, but a small fraction of the output which could be realized if the present stocks of rough fish were fully exploited. However, markets for these species in such great volumes are presently not available at economic prices. Consequently, the development of markets for these species is a prerequisite for achieving the potential of Canadian inland waters.

(a) The United States Market

The United States is and always has been, our most important market by far. As late as 1959, all our foreign sales went to that country. In recent years, there have been some shipments overseas, but in volume and value this still accounts for less than 5 percent of total foreign sales.

The United States market for freshwater fish was about 220 million pounds landed weight in 1964. Production in that country amounted to 135 million pounds and imports from Canada totalled 85 million pounds. Consequently, close to forty percent of the United States freshwater fish market was supplied by the Canadian industry. Moreover, this proportion has increased during the past ten years as United States production of freshwater fish has fallen off, and imports from Canada have risen.

Very significant, the Canadian industry is, in effect, the sole foreign supplier of freshwater fish to the United States. The reliance of the United States market on Canadian sources of supply is particularly pronounced for a number of individual species. More than 98 percent of the whitefish marketed in the United States is imported from Canada. The corresponding percentages for pickerel and pike are 97 percent and 100 percent respectively. In other words, Canada may be thought of as the sole source of supply for the whitefish, pickerel and pike consumed in the United States.⁽¹⁾

⁽¹⁾ See Appendix Tables 18, 19 and 20.

The heavy dependence of the Canadian freshwater fish industry on the United States market suggests a need for alternative markets. However, while small shipments have been made to Europe, European consumers have generally not been willing to pay as much as United States consumers for freshwater fish. Overseas sales of pike were made at prices comparable to those received from the United States market, but this is because it is a preferred species there, while in North America it is not. There also have been small shipments of whitefish overseas, but they were "B" fish, unacceptable for the United States market. This effort to market highly infected whitefish in Europe is, in the opinion of the Commission undesirable. It may in any event be a short-term operation only, but meanwhile will be very detrimental to already well-established markets for other species of Canadian fish, in which Canada can pride itself on the quality provided.

The domestic market could become a more important customer of the Canadian freshwater fish industry; particularly if the industry would be more careful of the quality made available, and would not use the domestic market as a last resort to market fish of otherwise unacceptable quality. The volume which can be sold at prices comparable to those in the United States will however, remain limited, as long as Canadian anglers have already access to well-stocked waters.

These factors lead me to believe that the Canadian freshwater fish industry will continue to be dependent on the United States market as its single, most important and most profitable outlet. To be so heavily dependent on one market area is not desirable, in fact it constitutes a weakness in marketing position which has not been overlooked by United States importers of fresh, round or dressed freshwater fish in the past. The Canadian freshwater fish industry, however has not taken advantage of the bargaining strength inherent in its position as the sole foreign supplier of freshwater fish to the United States market, where we control as much as 100 percent of the supply of the major species. This should be a source of great strength. Instead, the potential bargaining power has been wasted, because the selling func-

tion is shared by too many individual exporters and dealers. The multiplicity of middlemen has been detrimental to Canadian fishermen and the resulting loss of bargaining strength constitutes one of the main areas of concern in the marketing of freshwater fish today.

(b) The Nature of the Demand for Freshwater Fish

It is readily apparent from the above outline that the marketing of each of the important commercial species is heavily oriented to export trade, principally with the United States. The welfare of the entire inland fishery, but particularly for each of the major species, is therefore dependent on demand conditions and market developments in that country. Hence, an examination of the nature of the demand for freshwater fish in the United States is a requisite for a full investigation of the freshwater fish industry.

The demand for freshwater fish in the United States is largely ethnic, racial and regional in origin. The use of freshwater fish is a matter of religious ritual and tradition for Jewish people. Negroes, as was pointed out to me during informal discussions with the American importers, also prefer freshwater fish, probably because of their past proximity to, and dependence on inland waters for this protein-rich food. A natural preference for freshwater fish is also found in the mid-west in the United States.

The Jewish population in the United States is a major consumer of Canadian freshwater fish. Canadian fish marketed in the round is purchased by members of the Jewish faith in the preparation of ceremonial dishes for Sabbath observance and for the thirty or more special fast days and holidays that occur each year. In the past, the Jewish housewife with traditional ceremony made the dish in her kitchen from freshwater fish, predominantly fresh whitefish, with occasionally other species such as pickerel, pike and carp. Canadian exports of whitefish, to conform to this demand pattern, were mainly shipped fresh dressed.

The population of the mid-western states has shown an affinity for pickerel and pike because these are native to the region. Lacking

a commercial fishery of any size, most of the region's freshwater fish requirements must come from Canada. In the past, much pickerel and pike was sold round, frozen. They were caught in Canada, and were exported without further processing. Storage on the part of the rural, non-urban consumer was not a problem during the long winter.

The Negro population has also long been a major consumer of freshwater fish, and its importance as such was repeatedly emphasized. Their preference is still for the less expensive species, e.g. rough fish such as carp, suckers, etc., most of which are landed not in Canada, but in the United States. However, this group of consumers represents a significant potential demand for Canadian freshwater fish.

An important portion of Canadian freshwater fish has been used by United States manufacturers for smoking. In 1961, the production of smoked whitefish and chub amounted to over 6 million pounds.⁽¹⁾ The whitefish is imported almost exclusively from Canada, as are most of the chubs. Whitefish for smoking comes primarily from Lake Winnipeg, and is recognized by the trade as a premium grade of whitefish. Since they are smoked in the United States, the Canadian freshwater fish industry exports the whitefish and chubs in the whole form.

Traditionally, the Canadian freshwater fish industry has marketed almost all its catch fresh, either round or dressed. The most notable feature of this product is its perishability, which has greatly influenced marketing. There is a premium on time in moving fish from producer to consumer. Distance from markets, measured in time, is a serious handicap. It is appreciated readily that perishability affects adversely the bargaining position of the primary producer in relation to the exporter and the latter in relation to the United States importer.

One favourable feature of the demand for whole, fresh fish is that it has the attributes of a luxury demand. It is a product preferred by its major consumer groups, and in their view substitutes are unacceptable. It is a high-priced product in relation to other protein-rich foods,

particularly sea fish. The willingness of the consumer to pay the higher price for the major inland species, covers not only the higher costs of moving a perishable product, but also rewards the fisherman with a higher per pound return than his colleague in the East Coast sea fishery.

Another important characteristic of demand for whole freshwater fish is its seasonal and weekly peaks in consumption. This is because demand is closely connected with fast days and holidays. Fishing effort, of course, should follow the pattern of consumer demand. Hence, because of the perishable nature of the product and because of the distance which separates the primary producer in Canada from his market in the United States, ideally most of the fishing effort in the freshwater fishery should be concentrated in the beginning of the week if the product is to reach the weekend market in optimum condition. To miss the weekend market, means at the very least, a lower return because the quality of fresh fish inevitably deteriorates when it is held over.

The public interest would be served best if fishing effort were maximum at times of seasonal highs in demand. However, proper co-ordination is a problem. On a short term basis, the fisherman and local buyer can coordinate supply and demand knowing that if they fail their returns will be lower. Longer term coordination, however, is influenced by provincial regulations which govern the opening and closing of fishing seasons for lakes. Since each provincial government wishes to maximize the return for its fishermen, open seasons have tended to correspond with the seasonal peaks in demand. Through lack of coordination between provinces, there has very often been over-production which caused depressed prices. These circumstances emphasize the need for coordination of total fishing effort with consumer demand, a need which is even greater when one realizes that fluctuations in demand for a perishable product can be greatly exploited in the bargaining process on the market place.

The seasonal nature of demand, in conjunction with the uncontrollable natural factors

⁽¹⁾ Report to Federal-Provincial Prairie Fisheries Committee of Sub-Committee on Marketing Organization for freshwater fisheries; Table IX, Page 49.

which govern fishing effort and its success, means that price fluctuations during the year are inevitable. This inherent instability in prices is however, increased in terms of the number and size of changes by two outside forces. First, there is the absence, on the part of the Canadian authorities, of any concerted effort within the limits set by nature, to coordinate supply with demand. And second, the multiplicity and amplitude of price changes is increased by the importer who exploits this lack of coordination.

The present instability in prices⁽¹⁾ is a cause of concern⁽²⁾ to many fishermen. Therefore, because of natural factors and because of provincial regulations one fisherman catches most of his fish when the market is weak and another when the market is strong. This is clearly undesirable, especially to the extent that the instability can be controlled. A more proper alignment of supply with demand and an improvement in bargaining position will prevent much of the instability in prices which has existed in the past.

2. The Change in Demand and Its Impact

While the Canadian freshwater fish industry markets most of its fish today in the round, or dressed form, it is evident from Table 3 that consumer demand has been shifting to the filleted product. These changes in consumer preference are the result of the revolution which has taken place in food merchandizing and of higher standards of living. The continuous shift from purchasing unprocessed primary produce to manufactured "convenience" foods so common in consumer behaviour during the post-war period, has also characterized the consumption pattern for freshwater fish. This has applied not only to consumers of freshwater fish in general but also to those special groups of consumers dealt with above.

The young Jewish suburbanite is now more likely to buy ready-made "gefilte" fish than to prepare it. Production of "gefilte fish" in jars has expanded greatly in recent years.⁽³⁾ However, the manufacturer uses fillets as raw material rather than fresh, round or dressed fish.

⁽¹⁾ See Appendix, Table 21.

⁽²⁾ Transcript of Public Hearing, Page 501.

⁽³⁾ See Appendix, Table 21.

Moreover, while the manufactured product consists primarily of whitefish fillets, it may contain pickerel, pike or carp as well.

TABLE 3
Canadian Exports of Freshwater Fish by from
Utilization Year 1941 and Annual Averages,
1955-1959 and 1960-1964
(round weight, 000 lbs.)

	1941	Average 1955-1959	Average 1960-1964
Fresh, or frozen	65,311	51,806	53,755
round or dressed	6,002	36,630	37,812
Filleted, fresh or frozen			

Source: Appendix, Table 23

A similar change has occurred in the purchasing behaviour of the Mid-westerner. Sales of frozen round pike and pickerel by the truck-load during the winter in small farming communities are memories now. Fresh dressed pickerel is still purchased, but the one-pound package of fillets has become dominant. Production of smoked fish, particularly smoked whitefish, has fallen off; especially and increasingly so after recent cases of botulism attributable to some fish smoked in the United States. This again has reduced the demand for whole, dressed Canadian whitefish.

The growing utilization of Canadian freshwater fish for filleting has not affected all species equally. The volume of whitefish which has been filleted has increased in relative as well as absolute terms. (See Table 4). This is a reflection in part of the greater proportion of "B" whitefish produced today, the remoteness of some producing areas and the fact that demand for whole dressed whitefish has levelled off. However, at present 70 percent is still marketed fresh or frozen, round or dressed.

Exports of pike, pickerel and sauger compared with landings of these species suggest that more than half of Canadian production is currently filleted. Moreover, it can be seen in Table 4, comparing the years 1955 and 1964

TABLE 4**Landings and Utilization of Canadian Whitefish:
Annual Averages 1955-1959 and 1960-1964**

Whitefish landings	Av. 1955- 1959	Av. 1960- 1964
Whitefish landings (000 lb. round weight)	23,574	25,717
Marketed fresh or frozen (a) whole or dressed (000 lb. round weight)	17,717	17,754
Filletted (000 lb. round weight)	5,857	7,963
Percent filletted	24.8%	31.0%

(a) Assumed all exported

that the proportion filletted has continued to increase. For the five major species, whitefish, pickerel, lake trout, sauger and pike combined exports in fillet form have expanded rapidly, and exports in the whole form have declined. The change in demand, however, has not proceeded far enough to make filleting the major form of utilization of these species.

TABLE 5**Canadian Exports of Pickerel, Pike, Sauger
By Form of Utilization: 1955, 1960, 1964
(000 lb. round weight)**

	<u>1955</u>	<u>1960</u>	<u>1964</u>
Exported whole or dressed	17,840	11,962	10,536
Exported as fillets	22,097	9,277	14,815
Total Exports	39,937	21,239	25,351
Total Landings	42,936	26,319	23,567

Perch produced in Canada, largely from Lake Erie, are mostly exported as fillets. Moreover, during my visit to some United States importers, I was informed that whole perch imported from Canada were filleted as well. The perch is therefore, marketed almost entirely as a filleted product. This is, on the one hand, again indicative of the consumer's preference for this product form. On the other hand, the size of the perch limits marketing primarily to fillet form. As round or dressed fish the quantity of perch which could be marketed would be much less than present production. In other words, the perch fishery could not have developed to the extent it has without modern merchandizing techniques. Smelt is marketed primarily frozen dressed, the processing having been carried out in large-scale modern plants. Chub produced in Lake Huron, depends for its commercial significance on the smoking trade. Chub are therefore exported in the fresh whole form, and this pattern of utilization is not affected by the change in consumer preference.

The basic impact of the shift in consumer demand lies in the nature of the filleted product. The fillet, normally marketed frozen, can be stored. Filleting therefore, reduces perishability greatly. The demand pattern shows greater regularity therefore, because the consumer can store the product. Storability is of great benefit in reducing the incidence of irregularities in total fishing effort and total supply. Thus the problem of coordination between demand and supply is largely overcome when freshwater fish is filleted rather than sold fresh. And hence the price instability which pervades the marketing of whole fish largely disappears when the freshwater fish is filleted.

TABLE 6**Total Canadian Exports of Whitefish: Pickerel,
Lake Trout, Sauger, and Pike: By
Form of Utilization: 1960-64
(000 lb. round weight)**

	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>
Exported fresh or frozen, whole or dressed	35,516	33,136	33,050	30,276	28,509
Exported as fillets	13,831	13,607	16,192	18,116	19,187

3. Prices

The freshwater fish industry is in the first place an export industry. The economic viability of this industry consequently depends primarily on the return from the export market. An inquiry into marketing Canadian freshwater fish is therefore not complete without a brief analysis of export earnings. We wish to emphasize in this section especially the level of prices today and the difference in return from exporting freshwater fish in the whole, dressed form and as fillets.

On the United States market, the return on whole Canadian freshwater fish varies with species, size, freshness, region of production, method of production, and whether it is dressed or not. There is however, not a price schedule in Chicago or New York which recognizes for each species these factors separately, or indicates what volume was marketed at each of these price levels. The premium on fish caught in pound nets is specified in a separate quotation for whitefish and pickerel on the New York market, but not on the Chicago market. The Chicago market has separate quotations for different sizes of perch, bass, smelt and rough fish. But size differences for pickerel, pike, sauger, lake trout and whitefish are not specified in either Chicago or New York. Yet some Canadian exporters sell white fish by size and are paid accordingly. And while the Chicago market has a separate quotation for "Lake Superior" whitefish, covering generally Great Lakes production and one for "Canadian" whitefish from the Western fishery outside the Great Lakes, there appear to be no separate quotations for Great Slave Lake or Lake Winnipeg whitefish, which are both accepted by the trade as premium grades. Moreover, there are no separate quotations for each species in recognition of differences in quality. The price quotations⁽¹⁾ given therefore, must incorporate all these factors which are not recognized in separate quotations. The result is a price range rather than a price.

The wholesale price ranges are however, not a reliable indicator from month to month or even year to year, of the strength of the market or the average price paid for the volume marketed. The Commission was forced to rely on average

export values for this information. The existence of price ranges does however, indicate the lack of standardization and grading in marketing Canadian fish and the little control exercised by Canadian exporters in it. While the use of annual unit export values indicates the average return per pound exported, they as well hide the disparities in prices which exist for the various reasons discussed above.

(a) Price Trends

The average annual export value for each of the major species has increased since 1955. This is so for whole fish or fillets, fresh, or frozen fish. In fact the average return in 1965 was generally higher than during the previous ten years, evidence that market conditions are at present very favourable.

The accompanying graph shows that unit export earnings of whole dressed pickerel, sauger, whitefish and lake trout are higher than for pike, perch, and smelt. It is also readily apparent that the price rise has been greater for pickerel, pike, and sauger than for the other species. The average return for these three species in 1965 was in fact more than double that in 1955. The strength of pickerel prices resulted from the decline in total output, following the diminution in Great Lakes production. Sauger, a species related to pickerel, has benefitted similarly from the reduced output of pickerel. Unit export values for northern pike have also strengthened substantially. Consumer acceptance of this species, partially as a substitute for pickerel and sauger, and particularly in fillet form has improved, and prices have reacted accordingly. Since pickerel production declined only on the Great Lakes, therefore the beneficial impact on its price, and on sauger and pike prices, was felt solely by the industry in Western Canada and in Northern Ontario.

The average return in export markets has increased particularly slowly for Canadian whitefish. In view of the importance of whitefish in the inland fishery the stability in the return on this species has been a cause of great

⁽¹⁾ See for instance, Appendix, Table 21.

concern, especially in Western Canada and Northern Ontario, where over 90 percent of Canadian production originates.⁽¹⁾ Since the expansion in Canadian output has been limited during the past ten years, the stability in average returns is a reflection of the change in the purchasing pattern of the Jewish housewife, the increase in production of inferior grades of whitefish, and the consequent expansion in the production of whitefish fillets. Underlying these more readily assessable factors is the basic weakness of the Canadian exporter in selling whitefish, and the confusion and uncertainty which plagues the marketing of this species.

The average unit export value for whole dressed lake trout has also not shown a significant increase. This is however, due largely to a change in the relative importance of producing areas. Lower-priced Saskatchewan production has increased, and the output of the Great Lakes

and of Great Slave Lake of premium grades of lake trout has declined. This change in composition has hidden to a considerable extent the real strength of the market for lake trout.

(b) The Export Return on Fillets

A pound of freshwater fish fillets brings a greater return than a pound of whole fish. This should be so since it requires more than one pound of whole fish to produce a pound of fillets, and because of the additional filleting costs. When, however, one compares the return on fillets with that on whole fish, on a round or landed weight basis, then it becomes apparent that the return on fillets not only does not cover the costs of filleting, on average, but is even smaller than the return on whole fish. (See Table 7).⁽²⁾ In 1964, for instance, a pickerel weighing one pound when landed realized an average of 37.3 cents when exported round or

TABLE 7
Average Unit Export Values for
Canadian Pickerel and Whitefish: By
Form of Utilization: 1961-1964

	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>
	<i>Pickerel</i>				<i>Whitefish</i>			
	(cents per pound)							
<i>Product Weight</i>								
Fresh, round or dressed								
35.8	37.2	39.2	39.2	38.6	36.3	36.5	36.7	
Fillets								
66.7	65.1	69.5	70.0	34.1	32.1	36.2	40.1	
<i>Round Weight</i>								
Fresh, round or dressed								
34.1	35.4	37.3	37.3	32.2	30.3	30.4	30.3	
Fillets								
26.4	26.1	27.8	28.0	17.1	16.1	18.1	20.1	

⁽¹⁾ The stability in whitefish prices as far as the Western fishery is concerned, is overstated, because the proportion of high-priced Great Lakes whitefish, was higher in 1955-1959 than in later years, which modifies the impact of a general increase in price.

⁽²⁾ Even if the return on a round weight basis, is the same for the two forms of utilization, then the additional filleting costs have not been recovered. Filleting may be beneficial to the Canadian economy in that more processing will increase employment, but unless the foreign consumer pays for the cost of filleting these additional costs will be reflected in a lower return to the fisherman. It should be noted that the reduction in weight effects a saving in transportation costs.

dressed, and 28.0 cents when exported as fillets.⁽¹⁾ A similar gap in export returns, on a round weight basis, applies to sauger, pike and lake trout.

For pickerel, pike, sauger, whitefish and lake trout, it is implicit in the nature of the demand for fillets, as compared with the demand for round or dressed fish, that the return will on average be lower. The round or dressed product is a readily identifiable preferred commodity for its consumer. The filleted product has lost some of this identity. Moreover, quality to a discerning buyer is not as easily recognized in the fillet. In other words, the intensity of preference for the fresh whole fish may not be transferred to the filleted product. This in turn permits erosion of the freshwater fish market by available lower-priced substitutes in those areas where preference for freshwater fish is weakest. In order to combat this lower-priced marginal substitution, the filleted product must be marketed at a price, on a comparable round weight basis, on average, below that of the fresh, whole or dressed product.

There are therefore, two distinctive areas of demand or two markets for those freshwater fish species which can be utilized freely for filleting or for the fresh, whole dressed fish trade. This is not so for perch, which is marketed almost exclusively as fillets, or smelt which is sold largely in the dressed or headless form, or chub and tullibee which are generally speaking smoked. Whole pickerel, pike, sauger, whitefish, and lake trout in other words, do not compete with fillets on the market. Freshwater fish fillets compete with fillets of sea fish and other non-meat products.⁽²⁾ In other words, the two markets are exclusive of each other, although the raw material is the same. Theoretically this is a source of marketing strength. That portion of the catch which the fresh market cannot absorb at a given price is filleted. Therefore, the demand for the lower-priced fillet can be used to stabilize the price in the premium market, particularly during periods of oversupply.

The difference in export return between fish fillets and round or dressed fish is much greater for whitefish than for pickerel. The lower return when whitefish is filleted represents in part as well the loss of identity as a preferred product. However, there are more compelling reasons for the weak market performance of the whitefish fillet. Frozen whitefish fillets cannot be stored without a rapid loss in quality when frozen with present freezing techniques, because of the high fat content of whitefish. Moreover, most whitefish which is filleted at present is "B" whitefish, which cannot be sold whole dressed except in the lower-priced domestic market. This lack of alternatives is appreciated fully by United States importers of whitefish fillets. Furthermore, the fillets consist frequently of whitefish which were exported originally for the dressed fish trade but which were rejected by the United States Food and Drug Administration inspectors as "B" whitefish. By the time these have been returned, filleted, and candled,⁽³⁾ the quality is far from desirable. This has undermined seriously consumer confidence in this product. These factors all contribute to the relative low price obtained for whitefish fillets.

It is apparent that one cannot as readily separate the demand for whitefish into two distinctive segments as the demand for other species. There is in effect no freedom of choice in the utilization of "B" whitefish. The "B" whitefish can be marketed only in fillet form. Consequently, under the conditions which today govern the marketing of whitefish, supplies diverted to filleting have practically no stabilizing effect on the price of "A" whitefish which is marketed round or dressed. Therefore, the benefit to be derived from the existence of two markets is largely absent as far as whitefish is concerned. This suggests a greater degree of instability in the marketing of whitefish than of other species.

Canadian export earnings would improve significantly therefore if the whitefish fillet could be marketed at a substantially higher price. This

⁽¹⁾ This difference is understated in that the exports, round or dressed are quoted f.o.b. Winnipeg, and fillets are quoted c.i.f. destination.

⁽²⁾ Marketing of Saskatchewan Freshwater Fish; Unpublished Report by J.T. Phalen and A.A. Hoidt, Department of Co-operation, Government of Saskatchewan, page 4.

⁽³⁾ Candling denotes the procedure for removing the *Trienophorus crassus* cysts.

will require in the first place the removal of the uncertainty which pervades the marketing of whitefish due to the present inspection system. Second, it will require a quality product, using fresh raw material, hygienic processing facilities and low-temperature cold storage facilities. Third, there will have to be a concerted effort by the freshwater fish industry, to increase consumer acceptance of this product.

The preceding discussion makes it clear that the shift in consumer preference has been of benefit to the marketing of Canadian freshwater fish. It is also clear that, as long as there is a demand for fresh, round or dressed freshwater fish, giving a premium price, there is no advantage to the Canadian industry to market all fish produced in fillet form. It is desirable that filleting be restricted to the amount required which will stabilize the premium market for the whole, round or dressed products; or to the amount which will maximize the return to the Canadian industry for all the fish it handles. Although the volume of filleting will undoubtedly increase, we feel that nothing should be done which will unduly hasten this process.

In summary, the freshwater fish industry is an export industry, which makes a worthy contribution to our balance of trade. The industry is dependent for its foreign sales almost wholly on the United States market for freshwater fish, and therefore lacks effective alternative outlets. On the other hand, United States importers depend on the Canadian industry for forty percent of its freshwater fish requirements, and for almost its entire needs of pickerel, sauger, pike, whitefish and lake trout. This potential source of strength has been wasted by a dispersion of selling power among too many individual exporters in the face of control over United States imports of whole round or dressed fish by a few importers.

The freshwater fish industry's major product is still round or dressed fish in spite of the gradual shift to filleting; this is particularly so for pike, pickerel, sauger, whitefish and lake trout. We indicated that for these species there are two distinctive areas of demand. If properly exploited, this would have a potential for achieving orderly marketing and maximizing returns.

Unfortunately, this potential has not been tapped sufficiently, and it appears to be impossible within the present structure of the industry. It is my opinion that the freshwater fish industry, as presently constituted, and in so far as it depends on and is controlled by United States importers of fresh round or dressed fish, has no interest in utilizing Canadian pickerel, pike, sauger, whitefish and lake trout for filleting. The filleted product by-passes this importer, and therefore, filleting reduces his turnover, control of supply and hence bargaining power. Even without this external pressure the Canadian dealers and exporters are inclined to the perpetuation of the marketing of fish in the fresh form. This is so because in essence they are merely commodity brokers interested in short-run gains. Filleting, on the other hand, requires a substantial outlay in plant and equipment, which contradicts this basically short-run outlook prevailing in the industry. In other words, the present dealers and exporters are inclined not to fillet and consequently foster the continuance of the instability in the marketing of fresh fish. This is not surprising because the loss in revenue in the long run affects not the dealer or exporter but the fisherman.

Prices received by Canadian exporters are currently higher than those which prevailed during the past ten years. Market conditions for Canadian freshwater fish are favourable and will continue to be strong in view of the increasing population and declining production of acceptable fish in the United States, provided the Canadian industry supplies a high-quality product.

C. PATTERNS OF MARKETING FRESHWATER FISH AND THE PARTICIPANTS

While the marketing of freshwater fish has a very impersonal non-human connotation, my inquiry is, in essence, concerned with people and with their involvement in the marketing process. Marketing begins with the fisherman and before freshwater fish reaches the consumer a number of other participants are involved. They are the dealer, the processor, the exporter and the importer. The participants in the export movement of Canadian freshwater fish are not

always the same, in fact they vary as marketing patterns vary.

As ownership of the fish is transferred, marketing evolves into a number of selling-buying relationships. According to my terms of reference, I must enquire into the strength or weakness of selling Canadian freshwater fish. In this subsection, it is my intention first, to describe the patterns by which most freshwater fish moves to the United States market, second, to outline the number of participants in marketing and third, to convey impressions of the relationships between these participants.

1. Marketing Patterns

Freshwater fish does not always move to export markets in the same manner. Many factors, including the product form demanded, the location of producing areas, the distance between fisherman and consumer, and possible means of transportation, have an impact on marketing patterns. As these influences vary from one region to another at any given time, and as they change with time at a given place, so marketing patterns will vary and change. Our primary interest is in the impact of the fish product demanded on participation in marketing, emphasizing the shift from round or dressed fish to fish fillets.

Freshwater fish are marketed essentially in two ways: (1) whole and (2) filleted. Whole freshwater fish may be put on the market "round", "dressed" or "headless". "Round" is as the fish comes from the water. When the viscera, gills and kidney⁽¹⁾ have been removed the fish is "dressed". A "dressed" fish with the head removed is called "headless" by the trade. A filleted fish has the major bone structure removed and results in two fillets "skin-on"; when the skin is removed the fillets are classified as "skinless".

(a) Marketing Whole Fish

The freshwater fish marketed whole, round, dressed, or headless consists currently mostly of pickerel, pike, sauger, whitefish and lake trout. These five species are at present for more than ninety percent produced in Northern

Ontario, the Prairie Provinces, and the Northwest Territories.

(i) Patterns and Participants

Round or dressed fish moves to the United States market essentially in three ways. First, the fisherman sells directly to an importer. Second, he sells to a Canadian exporter who deals with the importer. And third, the fisherman sells to a local dealer, who in turn ships the fish to an exporter.

The fisherman is the first and essential participant in marketing Canadian freshwater fish. This obvious fact appears to be often forgotten by the other participants in their relationships with the fisherman.

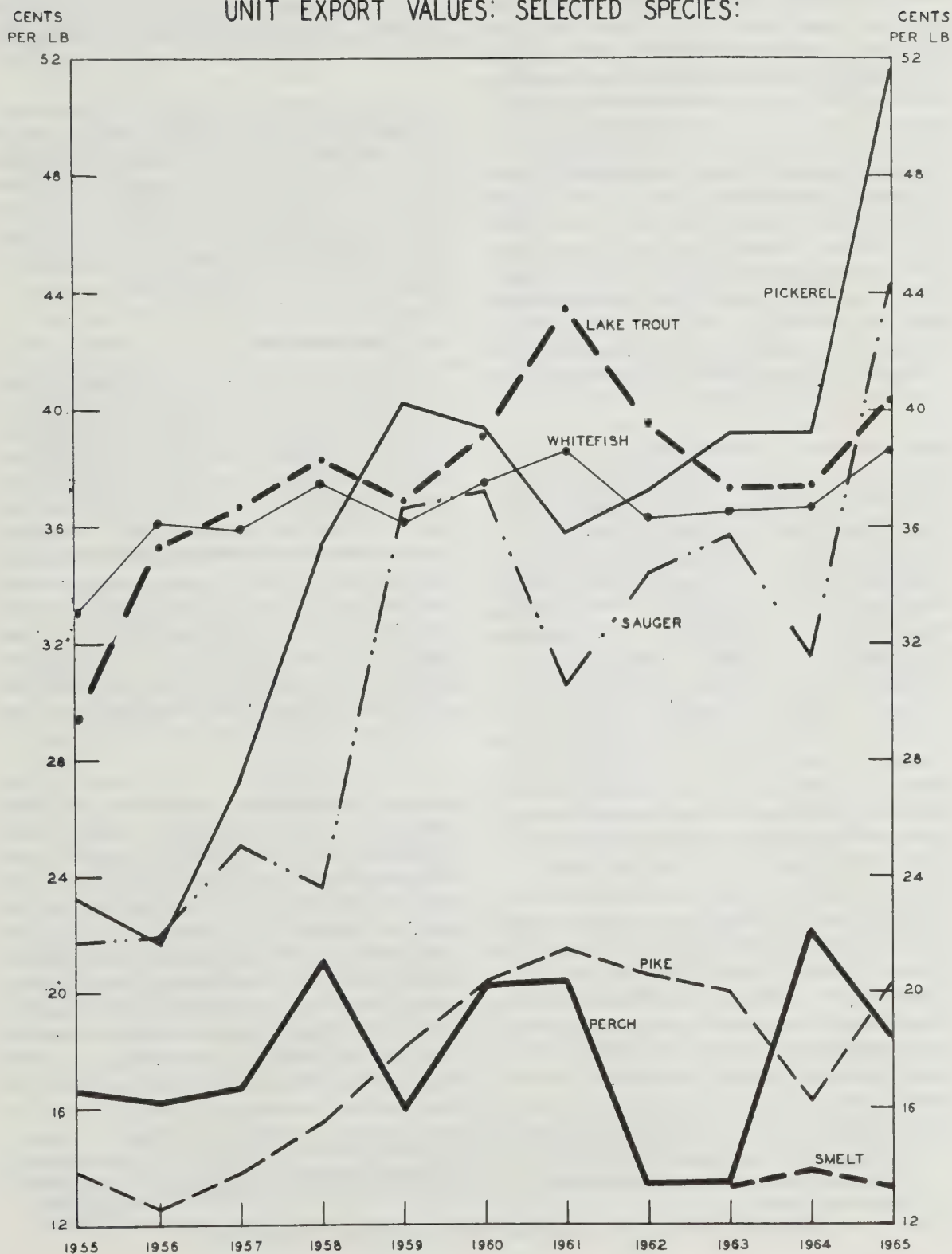
When the fisherman sells his round or dressed fish to the importer, he himself performs the exporting function. The only buying-selling relationship is that between the fisherman and importer. This marketing pattern avoids any additional middlemen, always an advantage from the fisherman's view-point. Generally, such a direct fisherman-importer relationship can only exist when the distance to market is relatively short. The extra express charges on small lots, and the overhead cost of telephone calls can be absorbed only when the distance involved is relatively short and when the value of the species marketed is high. These conditions apply mainly to Great

Lakes fishermen who handle whitefish, pickerel, and lake trout. Because the supply of these species of fish from the Great Lakes has declined, this direct export pattern accounts for less than ten percent of the total marketings of these species.

The second way in which fresh dressed fish reaches the importer is through a Canadian exporter. The participation of an individual who executes specifically an exporting function becomes necessary when fish is produced by many small-volume producers who are located a great distance from the market. When costs of transportation, handling and marketing become large in relation to the overall value of the product, it is advantageous for the fisherman to sell to an exporter. The fisherman-exporter

⁽¹⁾ This is usually called "blood" by the trade.

CANADIAN FRESHWATER FISH UNIT EXPORT VALUES: SELECTED SPECIES:



relationship is characteristic of the Great Slave Lake fishery in the Northwest Territories, the fishery on the southern end of Lake Winnipeg and the Great Lakes fishery. The Commission estimates that only about fifteen percent of the total output of pickerel, pike, and sauger, whitefish and lake trout is marketed in this manner.

When the distance between the fisherman and the exporter becomes excessive in terms of cost to the fisherman, then a dealer becomes involved in exporting. Almost all the fish landed in Northern Ontario, Manitoba, Saskatchewan and Alberta is handled not only by an exporter but by a dealer as well. The fisherman-dealer-exporter method of marketing is the most important, because it accounts for about three quarters of the pickerel, pike, sauger, whitefish and lake trout currently marketed.

(ii) Functions of Participants

When Canadian freshwater fish are marketed "dressed", the fisherman normally does the dressing. Fresh, round or dressed fish must be properly packed and iced, i.e. be placed parallel to each other in layers of ice so that freshness will be maintained.⁽¹⁾ This packing function can be carried out by the fisherman when he has boxes and ice and has access to railway or road transportation. However, a substantial proportion of inland fishermen, particularly in Northern Ontario, the northern lakes region of Manitoba, and the Northern Affairs region of Saskatchewan, must fly out their catch unpacked because shipping a box and ice would substantially increase already high costs of transportation.

The functions of the dealer reflect the physical setting of that segment of the freshwater fish industry in which he is located. The dealer purchases many small catches and assembles them into large shipments for forwarding. Most dealers in the northern segment of the industry are also packers. While the fisherman generally "dresses" his fish, he does not

pack it, particularly if the fish is flown out. The need to reduce transportation costs through larger-scale operations make the dealer another necessary participant in marketing freshwater fish.

The exporter's functions are essentially buying and selling. While the exporter may in some instances dress fish purchased in the round, ice and pack it; or may grade, re-ice and re-pack, the exporter is basically not involved in the transformation of the product. The exporter of round or dressed fish is primarily a commodity broker not a processor.

(iii) Transportation

The Commission did not ascertain the relative importance of rail, truck, plane and boat in the overall movement of fish from fisherman to market. Trucking has however, become the favoured means of transportation. Trucks have greater flexibility, and unlike trains are not scheduled. The use of trucks greatly widens the choice of loading and unloading points which permits greater freedom of plant location. As is important when moving a perishable item, the shipment receives individual attention when trucked, but not when moved by train. Each of these advantages of trucking is associated with saved time, a most important consideration when marketing a perishable product.

From the fisherman to the exporter, transportation involves a combination of plane, train, truck and boat. Because more and more freshwater fish is produced from remote lakes inaccessible by rail or road, therefore, the volume of fish which moves initially by air has been increasing.⁽²⁾ Air transport is important particularly in Northern Ontario, and the northern halves of Manitoba and Saskatchewan. Fish "flown out" is normally received by a dealer who forwards it by rail to the exporter. Trucking is relatively unimportant in these areas. Road construction lags far behind the

⁽¹⁾ When the fisherman performs these functions, he increases his income from fishing. In addition to the value of the fish, he receives a return for dressing, icing and packing. However, the by-products of dressing, i.e. the viscera, are wasted. When the fisherman sells his fish dressed, headless, then for most species one third of the landed weight remains behind in the bush. Any rationalization of the freshwater fish industry should consider this waste.

⁽²⁾ During the winter fishery the catch from such areas may be moved out by snowmobiles.

physical expansion of the freshwater fish industry. The initial movement of fish produced in Great Slave Lake and the Great Lakes, involves principally trucking. On Lake Winnipeg fish is still shipped by boats owned by the fish companies.

Truck transportation has become most prominent for forwarding freshwater fish from exporter to importer. Trucks move 90% of Canadian fish marketed in Chicago.⁽¹⁾ Great Slave Lake whitefish and lake trout are trucked from Hay River to Edmonton, a distance of 700 miles, and after a transfer, are trucked another 1500 miles to Chicago. The export movement of fish into Detroit is mostly by truck, although rail transport may be involved as far as Windsor. Shipments of fish for New York City are initially by rail to a border point, i.e. Montreal, and are trucked the rest of the way. Ninety percent of the receipts of freshwater fish at the Peck Slip section of New York City's Fulton Street Fish Market are brought in by truck.⁽²⁾

(iv) Distribution in the United States

Most whole round or dressed fish exported to the United States is marketed in New York City, Detroit and Chicago. In view of the concentration of Jewish people and Negroes in these centres, and Chicago being the gateway to the Mid-west, the prominence of these three cities in the marketing of whole fish is not surprising.

Importers in New York City have traditionally handled most of the round or dressed pickerel, whitefish and lake trout produced in the Great Lakes, and this region was the main area of supply for these importers. Detroit and Chicago have been the major centres for handling Canadian freshwater fish produced in the western provinces, Northern Ontario and the Northwest Territories. Freshwater fish which funnelled through Winnipeg, Edmonton and Prince Albert was handled most by importers in these two United States cities. Thus in the past, the export movement of freshwater fish was marked by two flows; one between the Great Lakes

and New York City, and the other between the western inland fishery and Detroit and Chicago.

The Great Lakes are no longer an important producer of pickerel, whitefish and lake trout. This has forced New York importers to look to western Canada as a new source of supply for round or dressed fish. Today, a substantial proportion of the total export movement of western fish goes to New York. Importers in Chicago and Detroit who previously controlled almost the entire movement of round or dressed fish from the Canadian inland fishery outside the Great Lakes, now receive only part, although the larger part. The eclipse of the traditional Great Lakes fishery has introduced an additional competitive element in the western inland fishery, thus weakening the dominant position of Detroit and Chicago importers.

The importer of round or dressed fish is in essence a receiver and distributor. The nature of the product makes him an essential link in the marketing process. Round or dressed fish is retailed by many small fish stores, each handling a relatively small volume. Thus the marketing of the round or dressed product begins with small volume producers and ends with small volume retailers. Transportation over long distances necessitates both aggregation by the exporter in Canada, and distribution by the importer in the United States.

(b) Marketing Fish Fillets

At present almost the entire catch of perch, smelt and bass and an estimated forty percent of the combined landings of pickerel, pike, sauger, whitefish and lake trout is plant processed. The marketing of the more-fully processed fish product accounts now for the larger part of the catch of the Great Lakes fishery as a result of the recently acquired prominence of perch, smelt and bass in that fishery.

Marketing freshwater fish in fillet form involves further processing. The additional processing function is usually performed in on-shore plants which are equipped with freezing facilities in order that the fillet can be frozen

⁽¹⁾ Receipt and Prices of Fresh and Frozen Fishery Products in Chicago, Market News Service, U.S. Department of Interior.

⁽²⁾ New York City's Wholesale Fishery Trade, Market News Service, U.S. Department of Interior.

for longer storage. The essential difference between marketing round or dressed fish and marketing fillets is that the latter requires a processor.

The processing function has in general been taken over by the exporter who previously handled only round or dressed fish. In other words, the exporter is no longer merely a broker of round or dressed fish with a short-run concern for covering variable costs; his only costs. He is now a processor, of necessity more concerned with the future, because of his outlay for plant and equipment.

The difference in outlook, generated by a change in demand and utilization is naturally of the utmost significance to the industry. Unfortunately, not all exporters have committed themselves to an investment in filleting and freezing facilities; and the facilities of those that have, indicate generally an inadequate commitment. This appears to be especially so for the exporter-processors in the western inland fishery. In this segment of the freshwater fishery, there still remains too much evidence of the old hit-and-run philosophy.

Filleting does not affect the participation of the fisherman as primary producer and primary seller. His role in the transformation of the fish into a marketable product however, generally ceases and he no longer "dresses" his fish or packs it for export. He delivers his fish for filleting "in the round" and consequently, loses the additional return for the dressing function, which may be as much as 3 cents per pound or 10 percent if he receives 30 cents per pound for round fish. On the other hand, plant dressing and filleting permits the utilization of the by-product for animal feed. Plant processing has another advantage; namely it will promote exploitation of "rough fish" for making fish meal or other animal feeds.

Filleting of necessity introduces another middleman, the processor, in the marketing process. The fisherman himself is excluded from exporting and can sell only to the processor-exporter. One fishery which has experienced this change is the Lake Erie fishery. When

pickerel was the paramount species the fisherman had a choice to sell round or dressed directly to the importer or to sell to an exporter or processor. Today, with perch, smelt, and bass the dominant species, the Lake Erie fisherman has lost this option and he must sell his catch to the processing plant.

The role of the dealer remains basically the same, whether pickerel, sauger, pike, whitefish, and lake trout are filleted or are sold round or dressed. His assembling and forwarding functions continue to be required. The dealer still ices the fish and packs the fish, because until it is frozen it remains highly perishable. In general, filleting has not greatly affected the marketing pattern and participation in Canada. The advantages of filleting are a highly desirable change in outlook by exporter, and a removal of processing from the fisherman which increases the utilization of offal. The disadvantage is a loss of income to the fisherman because of increased processing costs which are usually not recovered from the foreign consumer.

The main impact of filleting is felt by United States' importers of round or dressed fish. Shipments of round or dressed fish are distributed in many small parcels, because retailers handle small volumes and because the product cannot be stored. The retailer orders at least once a week which rules out any direct relationships between the Canadian exporter and the retailer. Filleting changes this. The frozen fillet is the logical outcome of modern merchandizing as embodied in the supermarket. The large turnover of the supermarket combined with the storability of the frozen fillet means less frequent but larger orders. In addition, transportation costs are a smaller proportion of the total value, so the exporter can advantageously deal directly with the supermarket. Consequently, the marketing of fillets makes the importer-distributor redundant. Therefore, to the extent that Canadian freshwater fish is filleted, the United States' importer of round or dressed fish is by-passed in marketing. Filleting reduces the control of the United States' importer of round or dressed fish over the export movement of Canadian freshwater fish.

2. The Number of Participants

(a) Fishermen

In recent years, about fifteen thousand commercial fishing licenses have been issued in inland Canada.⁽¹⁾ The actual number of men engaged in the commercial inland fishery is, however, around nine thousand, see Table 8. The average fisherman in the inland fishery lands per year eleven thousand pounds of all species of fish. When allowance is made for the much higher average landings per man in the Lake Erie perch, smelt, and bass fishery, and in the chub, lake herring and tullibee fisheries of Lake Huron, Lake Superior and Lesser Slave Lake, per capita landings elsewhere are reduced substantially. In fact, when "rough fish" are excluded, it appears that average landings of pickerel, lake trout, sauger, pike and whitefish are not much more than 6,000-7,000 lbs. per fisherman. Even this figure hides a wide disparity. For instance, average landings on Great Slave Lake have been in the neighbourhood of 15,000 lbs. per fisherman, while the average fisherman in the North Channel of Lake Huron landed in 1964 less than 3,000 pounds. Even though some produce much more than others, the fact remains that in terms of marketing each fisherman supplies a relatively insignificant proportion of the total volume which is marketed.

The fisherman engaged in the commercial inland fishery can be divided into two groups: (1) white fishermen, and (2) Indian and Metis. There is no accurate information on the relative number of fishermen in each group. Indians or Metis participate little in the Great Lakes fishery, but are the dominant factor in Northern Ontario. In the inland fishery of Manitoba, Indians and Metis are the more numerous on the lakes of 54° latitude, while on the large southern lakes white fishermen are the more numerous.

TABLE 8

Canada: Number of Fishermen Engaged in the Freshwater Fishery: 1961-1964

	1961	1962	1963	1964
Ontario	3,059	2,993	3,271	2,952
Manitoba	3,380	3,464	3,568	3,361
Saskatchewan ^(a)	1,750	1,850	1,827	2,010
Alberta ^{(a) (b)}	n.a.	n.a.	n.a.	1,008
N.W.T. ^(a)	336	476	453	508

(a) Duplication of license holders between summer and winter fishing could not be removed for these provinces.

(b) Excludes some 4,000 commercial license holders which are assumed to engage primarily in sport fishing.

Source: Ontario, Saskatchewan, N.W.T.: D.B.S. Fisheries Statistics of Manitoba and Alberta: Provincial Governments.

Almost all commercial fishermen in the Northern Affairs region of the province of Saskatchewan are Indians or Metis.⁽²⁾ In Alberta, 896 licenses were issued in 1964 to Indians⁽³⁾, suggesting that commercial fishing is performed mostly by Indians there. In the Northwest Territories, 133 commercial fishing licenses were issued to Indians and Eskimos in 1964, but white fishermen are more numerous in this region with 375 licenses⁽⁴⁾. In brief, white men generally fish in the more southerly areas, and the larger lakes, and Indian and Metis fish on the more remote smaller northern lakes.

While the overall number of fishermen in the inland fishery has not changed much in recent years, participation by Indians and Metis has been increasing and by white men has declined. The number of Great Lakes fishermen has been diminishing for some time because of a drastic drop in the catch of pickerel, whitefish, and lake trout. With abundant alternative employment opportunities available in recent years, an

(1) A fisherman is for purposes of provincial legislation, a person licensed to fish. Since a license is required for the summer fishery and the winter fishery, and sometimes for different lakes as well, therefore, the number of licenses issued greatly exceeds the actual number of men who during a given year engage in the commercial inland fishery.

(2) In 1946-47, the Saskatchewan Government decided that fishing in the Northern Affairs Region be limited to residents of that area. Since the population was mostly Indian or Metis, therefore their participation in the local freshwater fishery expanded quickly.

(3) Information supplied by the Government of Alberta.

(4) Information supplied by the Department of Northern Affairs, Ottawa.

increasing number of fishermen no longer have an incentive to remain in the Great Lakes fishery⁽¹⁾. In 1946, there were 3,037 Canadian fishermen on the Great Lakes; by 1959, the number had declined to 2,150 and by 1963 the number was reduced to 1,726⁽²⁾

In Manitoba, participation by white men in the fishery is declining as well, particularly on the three large southern lakes. This shows the general dissatisfaction with present conditions in the industry, particularly among fishermen of Icelandic origin or ancestry who have been for long, a prominent factor in the Manitoba fishery. In fact, the degree of happiness and contentment of these people in their occupation is often regarded as a useful indicator of the state of the freshwater fish industry. During the public hearings, it was made quite clear that they are not happy, are not content, but are very discouraged⁽³⁾.

While the number of white commercial fishermen has been declining the number of Indians and Metis has increased. The number of fishermen in Northern Ontario has grown from 1,068 in 1958 to 1,391 in 1963⁽⁴⁾. During the same period, the number of fishermen in the Northern Lakes Region of the Province of Manitoba expanded from 1,598 to 1,973⁽⁵⁾. A similar expansion has occurred in the number of licences issued in the Northern Affairs Region of the Province of Saskatchewan.

The expanding participation of the Indian and Metis in the commercial freshwater fish industry has significance for the marketing of Canadian freshwater fish. They may be less conscious about quality as reflected in their personal care of the product. Of greater consequence is the fact that the first buyer-seller relationship involves increasingly persons who

have not been introduced to the intricacies of the marketing process, and therefore lack or have inadequate knowledge about marketing which impairs further their already weak bargaining position. Problems in marketing freshwater fish are becoming more and more just another aspect of the generally deplorable economic and social conditions which mark the existence of Indians and Metis in Canada's northland.

(b) Dealers

The dealer participates in marketing most of the fish landed in the inland fishery outside the Great Lakes. The dealer buys freshwater fish from the fisherman, sells it domestically but does not export it. The Commission estimates that in 1964, 285⁽⁶⁾ persons were licensed by the provincial governments of Manitoba, Saskatchewan and Alberta to buy and sell fish domestically. Of this total there are 198 in Manitoba, 60 in Saskatchewan ⁽⁷⁾, and 27 in Alberta. Landings in these three provinces in 1964 totalled 56 million pounds, so that each dealer on average handled slightly less than 200,000 pounds of fish⁽⁸⁾. Assuming that there are some 6,000 men engaged in commercial fishing in the three Prairie Provinces⁽⁹⁾, it would appear that each dealer handles the catch of about 21 fishermen.

In the province of Manitoba alone there are 198 dealers who buy fish from the fishermen. On the southern lakes there are 114 dealers, mostly operators of fishing stations. The northern lakes have 84 people licensed to buy and sell fish. In 1964, Manitoba had 3,361 men engaged in the commercial fishery who caught 29 million pounds of freshwater fish. There was one dealer for every 17 fishermen and each dealer on average handled 150,000 pounds of fish, well below the

(1) See Transcript of Public Hearings.

(2) Fisheries Statistics, Ontario — D.B.S.

(3) See Transcript of Public Hearings.

(4) D.B.S. Fisheries Statistics — Ontario, 1959 and 1963.

(5) D.B.S. Fisheries Statistics — Manitoba, 1959 and 1963.

(6) This figure was derived information made available to the Commissioner by the Provincial Governments.

(7) This includes the manager of each local fishermen's co-operative.

(8) This is a maximum figure, in that no allowance is made for deliveries by fishermen directly to the exporter, thus by-passing the dealer.

(9) Allowing for duplication.

average for all three prairie provinces. The contrast with the general level is even greater when one considers the Northern Lakes Region separately, where each dealer averaged only 135,000 pounds.

The Saskatchewan freshwater fish industry presents a much more favourable ratio between the number of dealers and the volume of fish handled. The sixty dealers average almost 240,000 pounds each. The greater average amount per dealer can be attributed largely to the co-operative associations, the members of which produce about 7 to 7.5 million pounds of fish annually⁽¹⁾. In other words, each manager of a local, who is assumed to have the equivalent function of a dealer, handles about 400,000 pounds of fish. By comparison, the same volume of fish in the Northern Lakes Region of Manitoba would have encouraged the presence of three dealers. The average volume handled by private dealers in Saskatchewan is well below that achieved by each local co-operative. Private dealers number 42 and they handle the other 50% of the provincial catch, about 170,000 pounds each, closer to the average for all the prairies.⁽²⁾

Fishermen's co-operative associations, in the person of their respective managers do not eliminate the dealer-packer, but essentially replace him. The dealer's functions are carried out by the local co-operative, which demonstrates that the forwarding function is necessary in the physical setting of the freshwater fish industry in Northern Ontario and Western Canada. Competition among exporters for available supplies of fish results in duplication that is removed by the formation of a co-operative, which handles the entire catch of its fishermen members. The removal of duplication reduces the total overhead costs of marketing freshwater fish, and provides

an opportunity for increasing the return to the fisherman. The large volume of fish handled by each Saskatchewan co-operative suggest that the number of independent dealers could be reduced greatly, particularly in Manitoba.

(c) Exporters

The Commission estimates that there are some ninety-three exporters⁽³⁾ involved in selling Canadian freshwater fish in the United States and overseas. Sixty-one are located in Ontario and thirty-two in the three Prairie Provinces.

In the Lake Erie region of the Province of Ontario, there are twelve firms which process and export freshwater fish. These exporters handle primarily perch, smelt, and bass from Lake Erie and Lake Ontario. The catch from Lake Ontario is processed by Lake Erie exporters because there are no processing facilities near the former. Moreover, processing is necessary because the size of the fish eliminates marketing whole, round or dressed. The processor-exporters in this area handled, on average, about 28 million pounds of perch, smelt, and bass during the past five years.

The combined capacity of the facilities on Lake Erie are not sufficient to process and store⁽⁴⁾ as much perch, smelt, and bass as can be produced, without overfishing, from Lake Erie and Lake Ontario; a fact that was brought out quite decisively at the public hearings⁽⁵⁾. We find, however, that processing and storage capacity and particularly the latter, is inadequate mainly because production is seasonal; most of the catch is made in a relatively short period in the spring and in the fall of the year.

(1) Submission by Co-Operative Fisheries Limited to the Commission.

(2) This is overstated because Alberta dealers probably handle a good portion of Lake Athabaska production, and Manitoba dealers siphon off part of the catch of such adjacent lakes as Reinder Lake.

(3) The Governments of Alberta, Saskatchewan, and Manitoba license exporters, and therefore the number of exporters in these provinces can be ascertained quite readily. The Ontario Government does not license exporters and hence their exact number is unknown. The Commission has included in its estimate the 18 plants who have certificates of registration as fresh and frozen fish plants, and 43 major exporters of whole, dressed fish, on the basis of information supplied by the Ontario Government.

(4) With regard to a shortage capacity this refers not only to the lack of physical space but as to the inability to finance seasonal carryover of any extent.

(5) Transcript of Public Hearings, pp. 798, 799 and 803.

Not every year does the catch exceed plant capacity. However, periodically there are years when the fish crop is particularly good, or when conditions favour harvesting it at a greater rate than could be sustained indefinitely. The fall of 1965 and the spring of 1966 was such a period. At this time, as in 1962, production was curtailed because of limited plant capacity. When fishing is good, the fisherman finds both that he cannot maximize his catch, and that his price is depressed. Fluctuations in landings do not, however, create the confidence which leads industry to invest in more processing and particularly more storage facilities. Hence, without action by government it would appear that the current situation will recur from time to time.

Other exporters in the Great Lakes region handle mostly round or dressed fish; pickerel, whitefish, lake trout, sturgeon, etc. Their number and the volume handled by them has declined as the Great Lakes catch of these species has decreased. Their position will remain precarious as long as Great Lakes production remains at its present level.

In Northern Ontario there are three exporters with licensed filleting facilities. A number of other exporters handling round or dressed fish only are also present. Exporters in this area handle both Great Lakes fish and "inland" fish. They do not control all freshwater fish landed in Northern Ontario because Winnipeg exporters compete with them and siphon off a substantial portion of the total regional catch. This inter-company competition has been beneficial to the fisherman, but has caused friction among those concerned and discontent that was voiced at the public hearings.⁽¹⁾

There are thirty-two firms licensed in Manitoba, Saskatchewan, and Alberta to export freshwater fish⁽²⁾. Their supply comes from the Northwest Territories, the Northern Ontario region nearest Manitoba, and the three Prairie Provinces. The total catch of this area is approximately 65 million pounds, round weight, of

which about 50 million pounds are exported. The firms licensed to export handle a substantial portion of domestic marketings and account for the entire export movement. Most of the 15 million pounds marketed domestically are species such as tullibee, suckers, burbot, etc. which do not enter export trade in significant volumes and which, to the extent that they are used for feed in fur-ranching, do not enter normal trade channels. The export movement handled by Prairie exporters consists mostly of pickerel, pike, sauger, whitefish and lake trout.

While there are thirty-two firms licensed as exporters, the Commission estimates by far the larger part of the export movement is controlled by twenty firms, of these thirteen are located in Manitoba, mostly in Winnipeg, three in Saskatchewan and four in Alberta. Alberta exporters control the export movement of pickerel, pike, sauger, whitefish, and lake trout landed in the Northwest Territories, Alberta, and Lake Athabasca. Total landings of these species from these areas amounted to 10 million pounds in 1964, indicating that each exporter averaged 2.5 million pounds.

In Saskatchewan, there are three major exporters, of which Co-operative Fisheries Limited, the one-desk selling agency for 18 local co-operative associations, is by far the largest. The other two are privately owned. The Co-operative Fisheries Limited handles the catch of the co-operatives which amounts to about 7 to 7.5 million pounds. The two privately-owned Saskatchewan exporters handle in the neighbourhood of 5 million pounds.⁽³⁾

The supply of pickerel, sauger, pike, lake trout, and whitefish, available to Manitoba exporters from Manitoba, and from adjacent areas in Northern Ontario and in Saskatchewan amounted to approximately 23 million pounds in 1964. It is supplemented by purchases from exporters in Saskatchewan⁽⁴⁾ so that the total volume handled by Manitoba exporters is around 25

(1) Transcript of Public Hearings, p. 1021.

(2) Information provided by provincial governments.

(3) Saskatchewan exporters do not handle the entire provincial catch. A portion of the catch is marketed by Alberta exporters and Manitoba exporters.

(4) The report of the auditor revealed that of the total turnover of Co-operative Fisheries Ltd. in the year ending Oct. 31, 1965, close to 15% was accounted for by sales to other Canadian exporters.

million pounds. Each exporter in Manitoba averages therefore less than 2 million pounds per year. It is clear that the ratio of exporters to available supply of freshwater fish is higher in Manitoba than in the two other Prairie Provinces. Since two firms handle 12–15 million pounds and 4 million pounds respectively,⁽¹⁾ then clearly many of the other exporters have small and marginal businesses. Discussions with members of the trade reveal that they realize that a reorganization and rationalization of the present industry is necessary.

Western exporters handle mostly round or dressed fish. The increasing prevalence of "B" whitefish and the gradual shift in consumer preference to the filleted product in general have led to the provision of filleting facilities. As pointed out previously, exporters have become increasingly processors. All exporters in Manitoba are licensed as processors and the three exporters in Saskatchewan also each operate one or more filleting plants. In other words, there are at least twenty firms who fillet fish regularly and as many as 31 establishments where some filleting is carried out.

Many of the plants meet the standards required in order that the product be labelled "Canada Approved" by the Federal Department of Fisheries. Nevertheless, most of the establishments, in my opinion, are small and inefficient, and many are out-of-date and are incapable of producing consistently a top-quality product. More important, there are few if any storage facilities available anywhere in Canada which can maintain a temperature of -15°F .⁽²⁾ This temperature or a lower one is a prerequisite for prolonged storage of high quality frozen fish.⁽³⁾ The absence of enforced standardization in production and of quality control, and the inevitable lowering of quality which results, have undoubtedly affected adversely consumer acceptance of Canadian freshwater fish fillets.

The general inadequacy of filleting facilities in the freshwater fish industry suggests that

most exporters are not willing to commit themselves to an investment in modern plant and equipment. There are two reasons for this unwillingness to invest or "plow back" money into the freshwater fish industry. First, the exporter still prefers to market fish round or dressed. Second, if each exporter were to erect a modern filleting plant, there would not be enough fish to go around. In a seasonal industry in which, moreover, filleting is basically a market stabilization, idle capacity is a major deterrent to investment. Western processors filleted in the neighbourhood of 20 million pounds of fish in 1964, a volume which obviously would not permit every exporter to operate a modern well-equipped filleting plant at capacity. The need to rationalize and consolidate this aspect of the freshwater fish industry is obvious, for the present approach of the industry is inefficient and wasteful.

(d) Importers

While the number of importers of round or dressed fish has declined, importers of fish fillets have become more numerous and overall the number of firms in the United States which import Canadian freshwater fish has increased. So control over the total export movement has become diffused, which affects the market position of Canadian exporters beneficially.

The New York fresh fish market, on Peck Slip off Fulton Street has declined sharply. As discussed previously, among the contributing factors were the drop in Great Lakes production and the change in consumption patterns. The number of importers of Canadian round or dressed fish has fallen off sharply. At present, there are no more than a dozen firms left on the New York freshwater fish market.

Fewer dealers operate in the Chicago and Detroit area also. At present, there remain five importers in Chicago and five in Detroit who handle round or dressed Canadian freshwater fish. In Chicago, one firm accounts for 65 per cent of the fresh fish business and the next

(1) Auditor's Report.

(2) Evidence submitted to the Commission.

(3) Verbal report Fisheries Research Board of Canada.

largest 25 per cent.⁽¹⁾ One of the four firms in Detroit is reported to control almost the entire flow of freshwater fish from Western Canada into that city. The other three handle primarily Great Lakes fish, mainly perch, which they fillet, and supplement with Western fish when it can be obtained.

Many times during the course of my inquiry control by importers in Chicago and Detroit was cited as the main problem in marketing Canadian freshwater fish. Previously, we pointed out that the importer-distributor has been a necessary participant in marketing round or dressed fish. Consequently, they will continue to participate in marketing Canadian freshwater fish as long as it is marketed round or dressed; and it is desirable that they do. Control over the export movement of Canadian fish by Chicago and Detroit importers has, however, diminished during the past decade. When Canadian freshwater species were mostly sold round or dressed the United States importers, particularly in Chicago and Detroit, exercised market advantages derived from their monopsonistic position. Today the market position of the United States buyers in Chicago and Detroit is less imposing. First, their position was undermined when New York importers were forced to seek supplies in Western Canada following the decline in the Great Lakes fishery for pickerel, whitefish, and lake trout. Second, the shift in consumer demand for fillets reduced their overall participation in marketing. In other words, the importers in Chicago and Detroit are today getting a smaller share of a smaller market. However, through their control of the market for round or dressed fish, they continue to exercise a widespread influence indirectly over the entire western freshwater fish industry.

This does not suggest that the solution is to fillet all Canadian fish and thus eliminate entirely the influence of these importers. In discussing the changes in demand it was made clear that this would not be beneficial to the Canadian fishermen at existing prices. The solution is to utilize the Canadian catch of freshwater fish for both the round or dressed fish market and the fillet market in those amounts

which will maximize Canadian export earnings. This will simultaneously minimize the influence of the United States importer. In other words, the emphasis should be on co-ordination, which is lacking or absent at the moment.

3. Relations Between Participants

Marketing involves a number of buyer-seller relationships. Each time that the ownership of fish is transferred, bargaining takes place between two positions of market strength. Each party seeks to recover the costs it has incurred and thereafter to maximize the return on capital and labour invested. Bargaining is concluded when both parties agree on a mutually acceptable price. Consequently, there is a price for each species of Canadian freshwater fish at each step of the marketing process.

According to my terms of reference, I am commissioned to establish whether the Canadian exporter finds his bargaining position weak relative to the United States importer or, whether the export price realized represents a recovery of all costs incurred by the exporter and a maximum return on his investment and labour. Also I am instructed to establish what the bargaining position of the fisherman is in relation to the exporter.

It is apparent that the middlemen in marketing freshwater fish, i.e., the United States importer, the Canadian exporter and the Canadian dealer, each bargain twice, once as a buyer and once as a seller. Therefore, the importer, the exporter and the dealer have two opportunities to recover their incurred costs and to maximize their return on capital and labour. By comparison the fisherman and the consumer of Canadian freshwater fish are at a disadvantage in marketing because they participate only once, the former as seller and the latter as buyer.

Information on prices and costs at all levels, especially for the United States importers, is unavailable or at best sketchy. Consequently, a deductive analysis, using prices and costs to determine the strength or weakness of the importer, the Canadian exporter and the fisherman

(1) "Marketing of Saskatchewan Fish"; Department of Cooperation, Government of Saskatchewan, Unpublished Report.

is not possible. We can only describe qualitatively our impressions concerning the relations between these participants and indicate pertinent evidence brought before the Commission.

(a) The United States Importer and the Canadian Exporter

In the previous discussions we have defined two groups of United States importers: (1) importers of round, dressed fish, and (2) importers of fillets. Canadian exporters sell freshwater fish to both groups. It is my purpose to describe the relations between the Canadian exporter and each kind of United States importer.

(i) The Canadian Exporter and the Importer of Round or Dressed Fish

The market position of any firm cannot be stronger than when it is the sole supplier of the product it sells and the sole outlet for the raw material it purchases and when the demand for the product is influenced little by the price asked, and the supply of the raw material is influenced little by the price offered, and also when the firm sells to many relatively small-volume buyers and purchases from many relatively small-volume sellers. The previous sections in this chapter indicate that this position was approached by the United States importers of round or dressed fish in past years, especially the importers in Chicago and Detroit who controlled the export movement of western freshwater fish. Consumption of round dressed fish was governed by institutional factors, religion, etc., rather than by price, and supply which was related to fishing effort, was also largely unresponsive to price. And as far as Canadian exporters were concerned, these importers were their sole outlet.

The United States importers of round or dressed are still the dominant market influence. However, their advantage has been reduced, because of the changes which have taken place in marketing Canadian freshwater fish in recent years. More filleting in effect means that the supply of round or dressed fish has become much

more responsive to price for those species which can be utilized for both the round or dressed market and the fillet market. If the price offered by a United States importer is not acceptable then the Canadian exporter withdraws the fish by filleting it.

Stabilizing the market for round or dressed fish by filleting is obviously only to the advantage of the Canadian exporter when the two product forms are normally about equally profitable. It is advantageous when marketing pike, pickerel, and sauger, but not whitefish because of a very substantial price differential between the two product forms. So the beneficial impact of filleting on market position does not apply to whitefish. Hence, control by United States importers over the export movement of whitefish continues unabated.

In addition to filleting, other developments now provide Canadian exporters with alternative outlets; for instance, the opening up of other foreign markets which has involved mainly pike. Prices offered for other species in foreign countries do not favour the extension of markets beyond the United States at present. However, attempts to develop new markets with acceptable returns should be encouraged.

In spite of these additional competitive elements, the United States importer of round or dressed fish continues to bargain from a position of strength. Consequently, he can maximize his profits from two sides, namely at the expense of the United States retailer and at the expense of the Canadian exporter. After all, on the market place the strength of the one participant is the weakness of the other. The importer's position encourages him to overload the market at all times. He retains gains from favourable market developments and passes on losses from adverse situations. He need have little concern for adequate storage facilities because the additional cost of inefficiencies will be absorbed in the long run by someone else. It is therefore not surprising that Canadian dressed pickerel which was exported at a price of 45 cents f.o.b. Winnipeg,⁽¹⁾ retailed for 89 cents U.S.⁽²⁾ In other

⁽¹⁾ Auditor's Report: Price f.o.b. Winnipeg, July 1, 1965.

⁽²⁾ Report of Market Survey for Fresh and Frozen Fish in the Central U.S., Department of Trade and Commerce, not published: Price retail, Great Northern Inc. Minneapolis, July 31, 1965. Retail prices for dressed pickerel in two other centers on this date were 99 cents U.S. and U.S. \$1.09 per lb.

words, the Canadian exporter received less than fifty percent of the final price for pickerel, which was caught, iced, dressed and packed in Canada. The spread between the exporter's price and the price to the consumer was more than one hundred percent.

The business relationships between the Canadian exporter and the United States importer of round or dressed fish reflects the relative strength of the two participants. Many Canadian exporters of round or dressed fish are, in effect, agents of the importers in Chicago and Detroit, and retain little independence. A number of these are incorporated under Canadian law and are subsidiaries of the importing firm. In these instances, it is unrealistic to discuss a bargaining process which leads to an export price.

With regard to the independent exporter, all dealings with the importer are by telephone. There are no legally binding contracts. Such formalization would introduce an element of rigidity which the importer rejects as an encroachment on his market position. From evidence brought before the Commission, it is clear that the importer can reduce the invoice price agreed upon for poor quality, or shortages, etc., with impunity.⁽¹⁾ For instance, the payment to one Canadian exporter quite regularly involved a reduction in the invoice price of 5 cents per pound.⁽²⁾ The importer has no use for standardization or grading because they would reduce flexibility which he now exploits from his dominant market position. It can be seen that it would be extremely beneficial to formalize the marketing of Canadian round or dressed fish.

(ii) The Canadian Exporter and the Importer of Fillets

The market position of the importer of fillets is not as strong in relation to the Canadian exporter as that of the United States importer of round or dressed fish. The freshwater fish fillet has readily available substitutes and consequently the consumer is more price-conscious.

The number of United States retailers willing to handle filleted fish exceeds available supply. With the exception of perch fillets, the supply of fillets of other major species is also sensitive to price changes, since the amount filleted depends generally on the price which can be realized when the fish is marketed whole round or dressed. These factors in general favour the Canadian exporter in marketing.

The proportion of the retail price which accrues to the Canadian exporter is much more realistic for freshwater fish fillets than for round or dressed fish. From July 5, to August 16, 1965, the price of frozen fillets of pickerel was between 89 cents and 94 cents Can. f.o.b. Madison, Wisconsin.⁽³⁾ Allowing 4 cents for freight and duty, the price f.o.b. Winnipeg was between 85 cents and 90 cents Can. per pound. On July 31, in Minneapolis, frozen pickerel fillets retailed between Can. \$1.28 (U.S. \$1.19) and Can. \$1.50 (U.S. \$1.29).⁽⁴⁾ The Canadian exporter therefore received between sixty and sixty-five percent of the retail price and the spread amounted to approximately 50 percent of the exporter's price.

Transactions between the Canadian exporter and the United States importer of fish fillets are more formalized partly because of the nature of the product. A more important factor is that both participants are members of the modern world of business. The Canadian processor has a substantial investment in plant and equipment, as does the United States importer. Both are concerned with conditions in the industry in the long-run, which creates a degree of interdependence and mutual interest.

The export trade in fish fillets often involves contracts to supply a United States importer for one or more seasons. One large Canadian producer of perch fillets has a long-term agreement to supply a division of a large United States food retailing concern. Similarly, a Saskatchewan exporter has a three-year contract to supply a United States food products manufacturer. These

⁽¹⁾ The Commission recognizes that Canadian exporters do on occasion ship inferior quality and "short weight" their boxes. But this is the sort of retaliation which is inherent in the round, dressed fish trade.

⁽²⁾ Auditor's Report.

⁽³⁾ Auditor's Report: Price c.i.f. destination.

⁽⁴⁾ Report of Market Survey for fresh and frozen fish in the Central U.S., Department of Trade and Commerce, not published.

formalized trade relations between the United States importer and the Canadian processor-exporter afford the latter a degree of certainty which he lacks when he sells round or dressed fish.

The trade in fillets is marked also by greater standardization such as package sizes. While the distinction between species is maintained, differences like size, colour and lake of origin disappear during processing. Fillets can be stored, and variations in quality are therefore minimized. These factors greatly increase confidence between buyer and seller, and in turn contribute to greater stability in prices.

During my discussions with United States importers of fillets they expressed on several occasions their interest in stability of prices. From their viewpoint, good business demands a regular supply at relatively stable prices so that consumers' good will can be retained by goods on the shelf each day without drastic fluctuations in price. This is good business for both sides.

The position of the Canadian processor-exporter of fillets in relation to the United States buyer is stronger than that of the Canadian exporter of round or dressed fish. This again emphasizes the great need to reorganize, rationalize and standardize the marketing of round or dressed fish, the premium product of the Canadian freshwater fish industry.

(b) Relations Between the Exporter and the Fisherman

My terms of reference also specify weakness in domestic prices. In other words, this Commission was also requested to consider the bargaining position of the fisherman in relation to the exporter or his agent the dealer.⁽¹⁾ We will examine whether the price to the fisherman reflects the export price, and what factors influence the spread between the export price and the price to the fisherman.

First, we will discuss the factors which affect price determination between the exporter

and the fisherman in Western Canada where marketing involves participation of a dealer-packer in most cases. Over ninety percent of the Canadian catch of pickerel, pike, sauger, lake trout and whitefish is produced in this region; they are marketed mostly in the round or dressed form. Second, the situation in the Great Lakes area will be examined where marketing is more direct, and where filleting and plant processing are more prominent, because of the dominance of the perch, smelt and bass fishery.

(i) The Western Inland Fishery

In this region, the freshwater fishery consists of some six to seven thousand fishermen, close to three hundred dealers and, about thirty-five exporters. In the following paragraphs, I propose to comment on the relationships between the exporter, his agent and the fisherman. Of particular importance is the change which is taking place in the position of fisherman versus the exporter. While it was not possible to determine the number of fishermen involved, the direction of the change is unmistakeable. The situation which prevailed some ten or fifteen years ago would now apply to only about a quarter of the fishermen. In order that the full significance of the recent developments may be appreciated, we will comment first on the relationship between the exporter and fisherman which was most common previously. Subsequently, we will indicate the recent developments which have altered these relations for the majority of fishermen.

The Western inland fishermen normally had only one buyer for his fish, because of the physical setting of the fishery. Fishermen on the smaller, more remote northern lakes especially, seldom had an alternative when they sold their catch. On a lake which could produce only 50,000 pounds per year, for example, it would usually not be profitable for two buyers to operate since neither would handle enough fish. Under these non-competitive conditions, the continuation of fishing effort, i.e. the assurance of a supply of fish, was the whole motivation of the exporter in his relations with the fisherman.

⁽¹⁾ While a number of dealer-packers are independent entrepreneurs the larger number are agents of the exporters. Therefore, we have considered the exporter and the dealer-packer as one entity in dealing with the fisherman.

To entice him to fish, the exporter or his agent often provided the fisherman with a boat, an outboard motor and nets, usually on a rental basis. Normally, the exporter also made working capital available in the form of food, gasoline, and oil, wages for the fisherman's helpers, etc. At the public hearings, it was indicated that many fishermen still remain undercapitalized and depend on the fish company for equipment and other supplies.⁽¹⁾ One exporter had on January 31, 1965, accounts due from shippers⁽²⁾ in the amount of 352 thousand dollars.⁽³⁾

The establishment of a price to the fisherman is of course influenced greatly by the fisherman's dependence on the exporter for equipment and supplies. When the fisherman is in debt to the exporter, he is not basically concerned with the price of each species he delivers. Of prime interest is the overall return on his catch and whether it is sufficient to cover the debt accumulated by the end of the season. Fishermen have indicated to me that often it is not.⁽⁴⁾ The Commission was unable to determine whether some fishermen fail to clear their debt regardless of good or bad catches.

As far as the exporter is concerned, the return to the fisherman need not be higher than just enough to assure his participation in the fishery. The return per pound to the fisherman need not be the export price minus the costs of handling, packing, icing, transportation, financing, etc., if a lower return will entice him to keep fishing. Therefore, the return paid by the exporter to the fisherman need have little or no relation to the export price. Also there need be little rationale to prices for each species and between species from lake to lake.

That fish companies make no attempt to relate prices to the fisherman to export prices is indicated by their lack of a separate bookkeeping

system for their financing operation. At the public hearings it was stated that fish companies did not know the cost of financing the fishermen.⁽⁵⁾ This cost, e.g. bad debt write-offs, is considered an integral part of the overall marketing operation, and is carried by all the fishermen whether in debt to the company or not. That the price to the fisherman is the same regardless of his state of indebtedness was also brought forward at the public hearings.⁽⁶⁾ It is evident that under these conditions there is little, if any, competition among exporters for the available supply of freshwater fish in terms of price to the fisherman.

The fisherman's weakness in marketing is obvious if his return lacks a constant relation to what the dealer or exporter receives. The Commission obtained evidence on prices to the exporter, to the dealer, and to the fishermen in northern Manitoba for dressed pickerel and dressed whitefish marketed on selected days during the 1965 summer season. With regard to dressed pickerel⁽⁷⁾, we conclude that (a) the fisherman generally did not benefit from the 6-8 cents increase in price which occurred during the summer season and (b), that the price to the fisherman on the northern lakes for any one day varies substantially from lake to lake and (c) that the fisherman's share of the export price is less than half.

From company books examined, it seems that the exporters passed on the increase in their return to the dealers. The dealers, however, failed to pass it on to the fishermen, as the price at the lake remained the same. The fishermen did not benefit from a strong market.⁽⁸⁾

Prices at the lake for dressed pickerel varied from lake to lake on any one day with as many as four different quotations among five lakes. While no doubt these variations in part

(1) Transcript of Public Hearings.

(2) Presumably local dealers who financed the fishermen.

(3) Auditor's Report.

(4) Transcript of Public Hearings.

(5) Transcript of Public Hearings.

(6) Transcript of Public Hearings. Significantly, under these circumstances there is little or no incentive for a more enterprising fisherman to become independent, because the price he receives will not include an additional return for using his own equipment.

(7) See Appendix, Table 27.

(8) This seems to suggest that the real strength lies with the dealer-packer not the exporter. This is generally speaking not so, because the dealer-packer is usually a commissioned agent, financed by the exporter.

reflect differences in transportation costs and in size and quality of pickerel, the fisherman does not know how his price compares with the export price, or with the price to fishermen on adjacent lakes.

The absence of any direct connection between the lake price and the export price is even more evident for whitefish. As pointed out, previously there are two trade grades of whitefish, (1) "A" whitefish which has been passed by Canadian inspectors and United States inspectors and is acceptable for export, and (2) "B" whitefish which cannot be exported. Because of the difference in returns on these two grades, the exporter-processor extends this distinction to his purchasing, recognizing "export" and "non-export" whitefish. In addition, the exporter breaks down the export grade in four classes, small, medium, large and jumbo. The dealer, the exporter's agent, apparently receives payment on the basis of this grading pattern,⁽¹⁾ but from the data examined, it appears that the fisherman does not. The common usage seemingly is to quote a single price for all whitefish. The lack of standardization and grading at the fisherman's level again substantiates his weakness in marketing, and the strength of the dealer and the exporter.

At this point, I wish to expand briefly on the share of the market price which the Canadian freshwater fisherman receives. During the summer of 1965, northern Manitoba fishermen received only 16-28 cents for dressed pickerel for which dealers were paid 34-47 cents and for which exporters received 50-56 cents if sold round or dressed and 56-64 cents⁽²⁾ if sold in fillet form. The price for whitefish to the fisherman during this period varied from 4 to 20 cents. The exporter received from 28-55 cents for dressed whitefish, depending on size, and for whitefish fillets 17 cents (dressed weight basis).⁽³⁾ In other words, in these specific instances, the fisherman received less than half of the export price.

⁽¹⁾ See Appendix, Table 28.

⁽²⁾ The higher return on fillets during this period represents the filleting costs, which were recovered in this instance.

⁽³⁾ See Appendix, Table 27 and 28.

⁽⁴⁾ Auditor's Report.

The spread consists of transportation costs, packings costs, filletings costs, marketing expenses and a return for labour and capital invested by the dealer and exporter. The more distant the market, the greater the spread. The greater the proportion of fish that is filleted the greater will be the average spread on all fish. Greater costs of packing, filleting and marketing because of inadequate equipment or arising from an excessive number of dealers, processors and exporters all tend to add to the difference between export and lake price.

The return to the dealer and exporter for labour and capital invested also is a component of the price gap. In the case of two prominent exporters, profit after taxes in 1964 and 1965 seems to have been less than 2 cents per pound.⁽⁴⁾ However, possible profits from packing stations which were operated by the exporter's agent were excluded from this calculation. The Commission was unable to determine the return on labour and capital at this intermediate level or to whom it accrued. However, if there are large profits, it is clear that they must be realized at this level.

Fishermen in the N.W.T. and in Alberta receive close to sixty percent of the export price, a larger proportion than any other group. Their share is larger because they produce a higher grade of fish than that produced elsewhere, which moreover is exported mainly in the dressed form. Further, while these areas are more distant from the eventual market, road transportation has reduced freight costs below that for fish produced in northern Saskatchewan and northern Manitoba where most fish must be moved initially by air.

Manitoba fishermen receive on average close to 55 percent of the market value of all fish delivered and Saskatchewan fishermen nearly 50 percent. The Saskatchewan fishery is in an unenviable position. Much fish must be flown out. The grade of pickerel and whitefish is generally considered to be lower than that from other areas of fishery. The proportion of the whitefish catch not acceptable for export is greater as well. These

factors all encourage filleting which increases the price spread.

Although the weakness of the fishermen's position is readily apparent when lake price fails to reflect the export price, the negligible role of many fishermen in selling their product was brought out even more forcefully at the public hearings. Several times fishermen pointed out to me that they did not even know the price of their fish at time of delivery.⁽¹⁾ Nothing, in my opinion, demonstrates more dramatically their basic weakness in marketing their product. The position of these men, and of their colleagues in a similar situation, is unique.

The exporter, or his agent, does not commit himself to a price because of uncertainties in marketing. The vagaries of the market are especially significant for whitefish. A whitefish is not an "export" or "A" whitefish until inspected by the United States Food and Drug Administration inspectors. If it fails to pass inspection, it cannot be exported, except possibly after it is filleted. So the price to the exporter is greatly reduced.⁽²⁾ It is understandable that exporting whitefish involves a great risk to the Canadian exporter even though less than 2 percent of all exports are rejected by United States authorities. Moreover, payment by the importer may be delayed, a further uncertainty; and not until payment will the Canadian exporter know if the invoice price has been reduced. Then if fish must be frozen or stored because of market conditions, the exporter will tend to delay payment to the fishermen not only to reduce financing costs but also as a "hedge". By not giving a price to the fisherman at time of delivery, the exporter via his agent, passes on to the fisherman all the risks which he may encounter in marketing.

We can see that the pressures which United States importers of whole, dressed fish exert on the Canadian exporter are passed on to the Canadian fisherman. In addition the costs of inefficiencies in handling and processing in Canada, described previously, are also absorbed by the fisherman. Distress selling by Canadian exporters

because of a lack of financial reserves can occur freely at the expense of the fisherman. Fluctuations in export prices are passed down in exaggerated fashion because at each stage of marketing additional cost factors are added. The exporter need show little concern with the proper utilization of fish in relation to the market because any loss in revenue accrues to the fisherman.

Now it is not our intention to suggest that all fishermen in Western Canada and in Northern Ontario are utterly dependent on the exporter or the local dealer. This may have been so for most of the inland fishermen in these regions at one time but the market position of most fishermen has improved in recent years, and they now have a greater voice in marketing their fish.

The bargaining position of many fishermen has improved mainly because of the co-operative movement. The impetus for fishermen's cooperatives in Western Canada was the formation of the Fish Marketing Service in 1949 in Saskatchewan. The Fish Marketing Service, successor of the Saskatchewan Fish Board, was a provincial crown corporation created to provide on a voluntary basis a commission service for fishermen who wished to market their fish through it. However, it was realized that fishermen should participate in marketing, and that fishermen's cooperatives should be encouraged for this purpose.⁽³⁾ Today Cooperative Fisheries Limited, the successor of the Fish Marketing Service is a central sales agency owned and operated by 18 local fishermen's cooperative associations in the province of Saskatchewan.

Provincial governments and the Indian Affairs Branch of the Federal Department of Citizenship and Immigration have encouraged the formation of cooperatives in the other provinces. Many fishermen's cooperatives with the help of government loans now own their boats and equipment and operate their own store. Many cooperatives outside Saskatchewan sell their product by tender to the highest bidder. Obviously, these fishermen have a freedom of choice in selling which is of

⁽¹⁾ Transcript of Public Hearings.

⁽²⁾ Transcript of Public Hearings.

⁽³⁾ Helen Buckley "Trapping and Fishing in the Economy of Northern Saskatchewan", Report No. 3, Economic and Social Survey of Northern Saskatchewan, Center of Community Studies, University of Sask., Saskatoon, page 101.

financial benefit to them. The formation of co-operatives has done much to alleviate the depressed economic state of the fisherman, and should receive every encouragement in the future.

A further effort at strengthening the bargaining position of the fisherman was undertaken by the Manitoba government. It established a radio service which gives current fish prices to the fisherman for the main species at various lakes in that province, which has the effect of giving the fisherman some knowledge of current market conditions, thus providing him with leverage in selling his fish.

The various programs outlined above have been instrumental in strengthening the bargaining position of most inland fishermen. But it must not be forgotten, as is quite apparent from the evidence submitted at the public hearings, that there are even today many fishermen who are in fact little better than indentured labourers of the fish companies. Mostly Indian and Metis, who have no alternative employment, their lack of any bargaining position should be a matter of concern to all levels of government.

The Commission wishes to point out also that the strengthening of the fisherman's position, while desirable, has occurred in part at the expense of the exporter. Weakening of the exporter's position with respect to the fisherman is not ipso facto accompanied by a corresponding strengthening in his position versus the United States importer. The uncertainties of the market and the extra cost of inefficient antiquated facilities must increasingly be absorbed by the exporters themselves. Consequently, the opportunity of the processing industry or the exporters to generate funds for modernizing their plants and equipment has been reduced.

It should also not be overlooked that, as long as the United States importer of round or dressed fish retains control over the premium market for freshwater fish, the benefit of any rationalization in the Canadian industry will tend to accrue to then rather than to the Canadian exporter or the Canadian fisherman. This point was emphasized in one of the briefs submitted to the Commission.⁽¹⁾ If bargaining strength can pass on to

other levels the additional cost from inefficient marketing then it can as well reverse the process by absorbing the benefit of reductions in cost. Ideally any strengthening of the position of either the fisherman or the exporter should not occur at the expense of the other, but at the expense of the United States importer.

(ii) The Great Lakes Fishery

In this section, we are concerned with the relations, as sellers and buyers, between about 1700 fishermen and some fifty to sixty exporters and processors. The marketing of perch, smelt and bass — 24 million pounds or two-thirds of the total landings of the Great Lakes in 1964 — involved approximately 700 fishermen and a dozen processors. In terms of the export movement of Great Lakes freshwater fish the relationship between these fishermen and processors is most significant.

The fisherman catching perch, smelt and bass must sell to a processor since the volume market for these species is for fillets not for round or dressed fish. While some can be exported "in the round" to United States processors, large quantities cannot. In fact, Commission members noted during a visit to Detroit that only one of the four main importers had adequate equipment and capacity to handle these species in the round. The fisherman has therefore little choice but to sell his catch to one of the dozen or so Canadian processors.

It would appear that the fisherman is often in a weak position when selling his catch to the processor. When the catch is less than the processing capacity, as in 1964, then competition among processors and United States importers of round perch will effect a high price to the fisherman, 18.3 cents per pound. When capacity is inadequate to handle and store the catch, as in 1962, then the weakness of the fisherman's position is apparent, particularly his lack of alternative outlets. The average price to the fisherman in 1962 was 6.2 cents.

Fluctuations in price to the fisherman for perch, smelt and bass, especially the first named, are a result primarily of interaction between

⁽¹⁾ Submission of the Province of Manitoba.

supply and the capacity of handling and storage facilities. The fact that recent prices have been much below those of previous years does not indicate that the supply of perch fillets is inconsistent with demand in the U.S. One processor has indicated that he has a long-term contract with a United States merchandizing firm to supply just one of their divisions since supplies could not be guaranteed on a sustained basis to supply an additional regional division. As indicated previously, the exporter of perch fillets has a relatively firm market position in relation to the United States importer. Weakness in the price to the fisherman, and its attendant fluctuations, are therefore, largely a domestic marketing problem, not one of export marketing.

In marketing of pickerel, lake trout, and whitefish, the Great Lakes fisherman, like all freshwater fishermen, does not bargain from strength with the exporter. There are however, a number of factors which, by comparison with the western fishermen, tend to obscure this basic weakness and which appear to lessen its incidence on the fisherman.

The Great Lakes fisherman catches pickerel, lake trout and whitefish which are recognized by the trade as of premium grade, and which are usually priced higher than the same species from Western Canada. Moreover, with the sharp reduction in Great Lakes production of these species the position of the fisherman has improved, so that the advantage of nearness to the market and hence reduced transportation costs is reflected in his return when compared to the price to the fishermen in Western Canada. The Great Lakes fisherman gets a higher average return for his fish, because it fetches a higher price in the United States and because he obtains a larger share of this price.

In 1961, the average value per pound of fresh, dressed pickerel exported by the freshwater fish industry as a whole was 23 cents.⁽¹⁾ The average value for exports from Ontario was 33 cents.⁽²⁾ The landed value to the Ontario fisherman for pickerel in that year was 25 cents.⁽³⁾

In other words the Great Lakes, fisherman received at least 75 percent of the export price, and received more than the export price for pickerel produced in Western Canada. Compared with fishermen in Western Canada, these figures indicate little weakness. The Commission also found little concern about the fisherman's selling position on the part of the fisherman himself or the Government of Ontario.

SUMMARY

Marketing Canadian freshwater fish involves nine thousand fishermen, more than three hundred dealers and close to one hundred exporters. Most of the freshwater fish produced in Western Canada and in Northern Ontario, mainly pickerel, pike, sauger, lake trout and whitefish, requires the participation of all three levels. The marketing of Great Lakes fish normally excludes the dealer and is consequently more direct.

The Canadian exporter experiences weakness in selling Canadian freshwater fish to the United States importer. This weakness in bargaining occurs especially when the fish is sold in the whole round or dressed form, as is most pickerel, pike, sauger, lake trout and whitefish, which are produced largely in Western Canada and Northern Ontario. Great Lakes production of these species has always enjoyed a more advantageous position in export markets because it is recognized as a premium grade, an advantage which has recently increased because of a sharp reduction in output. In exporting fillets, the exporter has a more favourable market position.

The weakness in export prices of dressed fish means not only that the Canadian exporter's share of the consumer's price is very small, but also that he pays for the cost of uncertainties and inefficiencies which the United States importer-distributor encounters in marketing. This applies particularly to the exporter of whole dressed fish in Western Canada. Because the Canadian exporter sells fillets directly to the retailer, bypassing the importer-distributor, and because the market position of fillets is more favourable,

⁽¹⁾ Trade of Canada, Dominion Bureau of Statistics, 1961.

⁽²⁾ Harold C. Frick, *Economic Aspects of the Great Lakes Fisheries* of Ontario Fisheries Research Board of Canada, Ottawa 1965, Appendix, Table XI. Includes Northern Ontario.

⁽³⁾ Fisheries Statistics, Ontario; Dominion Bureau of Statistics, 1961. Includes Northern Ontario.

therefore the export return on fillets of freshwater fish represents a more favourable share of the consumer price.⁽¹⁾

The Canadian inland fisherman, in selling his fish, has a relatively weak bargaining position, and in many instances has no position at all except the threat to quit. And for many inland fishermen this is an empty threat in as much as they are neither capable of having nor have alternative employment opportunities. This is especially true in Northern Ontario and in the northern parts of Saskatchewan, Manitoba and Alberta where the fishermen are mostly and increasingly Indians and Metis. The cooperative movement has helped to improve the situation, notably in Saskatchewan where local cooperatives have their

own sales agency, Cooperative Fisheries Limited.

The fisherman in Western Canada has little or no influence in price determination, and must absorb the risks which result from the exporter's weakness in marketing and the additional costs which result from too many exporters and too many dealers, and from the inefficient operation of canadian handling and processing facilities. In addition, the remoteness of producing areas adds high costs of transportation of which flying costs are becoming a more important component. Consequently, the fishermen in this segment of the freshwater fish industry receives only about 50-60 percent of the export price, or approximately one quarter of average price paid by the consumer in the United States.

⁽¹⁾ Despite a larger share of the retail price the return on freshwater fish fillets (round weight basis) has normally been less than the average return on whole dressed fish, because while the canadian share for the latter is smaller the consumer's price has always been considerably higher. Obviously, greater gains can be made by improving the position of canadian freshwater fish in the market for whole, dressed fish, than in the market for fillets.

APPENDIX A

STATISTICAL TABLES

Inquiry into Freshwater Fish Marketing

TABLE I
Total Landings of Freshwater Fish
Ontario, Prairie Provinces, Northwest Territories
1955-1964

<u>Year</u>	<u>Ontario</u>	<u>Manitoba</u>	<u>Saskatchewan</u>	<u>Alberta</u>	<u>N.W.T.</u>	<u>Canada</u>
TOTAL LANDINGS (000's lbs.)						
1955	45,634	34,936	10,152	8,731	7,827	107,280
1956	59,710	30,397	9,441	9,641	6,939	116,128
1957	51,109	31,571	11,065	10,415	6,584	110,744
1958	47,175	31,929	12,600	11,482	5,894	109,080
1959	48,984	31,052	12,550	12,664	5,747	110,997
1960	47,600	31,944	14,530	15,852	5,613	115,539
1961	54,951	30,658	14,515	11,317	5,676	117,117
1962	63,780	36,105	14,999	9,025	6,544	130,453
1963	51,342	35,738	14,089	8,509	6,347	119,025
1964	43,510	28,636	14,305	12,740	5,960	105,151
Av. 1955- 1959	50,522	31,977	11,162	10,587	6,598	110,845
Av. 1960- 1964	52,836	32,616	14,452	11,489	6,028	117,457
% change	+4.6%	+2.0%	+29.5%	+8.5%	-8.6%	+6.0%
VALUE (\$000's)						
1955	6,782.9	3,476.6	763.0	687.5	742.0	13,123.7
1956	7,927.3	2,947.0	783.9	790.2	787.4	13,230.0
1957	7,046.6	3,279.4	938.9	853.9	720.2	12,839.0
1958	7,271.2	3,540.4	1,090.6	878.7	682.0	13,462.9
1959	4,866.4	3,756.8	1,190.3	1,015.7	702.7	11,531.9
1960	4,983.0	3,866.7	1,367.2	1,158.6	699.7	12,075.2
1961	5,745.5	3,173.6	1,385.4	882.8	674.8	11,862.1
1962	5,341.1	4,229.3	1,477.5	713.5	859.4	12,620.8
1963	5,503.8	4,356.3	1,299.6	676.0	795.8	12,631.5
1964	5,239.8	3,720.0	1,489.9	799.0	808.0	12,046.7

Source: Dominion Bureau of Statistics; Fisheries Statistics.

Inquiry Into Freshwater Fish Marketing

TABLE 2
Lake Trout Landings: by Province and Region: 1955-1964
(000 lbs.)

Year	Man.	Sask.	Alta.	N.W.T.	Northern Ontario	Region Total	Great Lakes	Canada Total
1955	399	1,459	29	2,933	110	4,930	1,080	6,010
1956	486	1,298	18	2,652	62	4,516	579	5,095
1957	396	1,730	33	1,949	153	4,261	345	4,606
1958	333	1,980	23	2,008	244	4,588	378	4,966
1959	388	1,839	24	1,760	282	4,293	240	4,533
1960	404	2,067	24	1,117	161	3,773	124	3,897
1961	348	2,162	100	1,099	129	3,838	52	3,890
1962	505	1,988	10	1,339	137	3,979	71	4,050
1963	439	1,819	21	870	140	3,289	114	3,403
1964	336	1,817	14	972	117	3,256	108	3,364
Av. 1955-1959	400	1,651	25	2,260	170	4,506	522	5,028
Av. 1960-1964	406	1,971	34	885	137	3,433	94	3,527
Percent Change	+1.5%	+19.4%	+36.0%	-60.8%	-19.4%	-23.8%	-82.0%	-29.9%
		Percent of Canada Total		Percent of Canada Total		Percent of Canada Total		Percent of Canada Total
		8.0%	32.8%	44.9%	3.4%	89.6%	10.4%	
		11.5%	55.9%	25.1%	3.9%	97.3%	2.7%	

Source: Dominion Bureau of Statistics: Fisheries Statistics.

TABLE 3
Whitefish Landings: by Province and by Region: 1955-1964
(000 lbs.)

	Percent of Canada Total	Percent of Canada Total	Percent of Canada Total	Percent of Canada Total	Percent of Canada Total	Percent of Canada Total								
Av. 1955-1959	6,073	25.8%	6,070	25.7%	3,851	16.3%	3,943	16.7%	1,771	7.5%	21,708	92.1%	1,866	7.9%
Av. 1960-1964	7,282	28.3%	7,243	28.2%	3,265	12.7%	4,328	16.8%	2,355	9.2%	24,475	95.2%	1,242	4.8%
Percent Change	+19.9%		+19.3%		-15.2%		+9.7%		+33.1%		+12.7%		-33.4%	

Inquiry Into Freshwater Fish Marketing

TABLE 4
Pickeral Landings(1): by Province and Region: 1955-1964
(000 lbs.)

Year	Man.	Sask.	Sask.	Alta.	Alta.	N.W.T.	N.W.T.	Northern Ontario	Northern Ontario	Region Total	Region Total	Great Lakes	Great Lakes	Canada Total
1955	10,737	1,158		758		49		1,437		14,139		17,517		31,656
1956	7,669	1,259		215		19		1,593		10,755		22,099		32,854
1957	6,849	1,358		278		17		1,572		10,074		15,435		25,509
1958	5,477	1,544		374		152		2,048		9,595		6,612		16,207
1959	5,715	1,635		757		110		2,322		10,539		2,380		12,919
1960	6,893	1,738		1,063		253		2,258		12,205		1,448		13,653
1961	7,016	1,778		840		56		2,262		11,952		1,122		13,074
1962	8,115	2,340		469		31		2,539		13,494		1,168		14,662
1963	7,380	2,430		648		97		2,315		12,870		2,792		15,662
1964	4,853	2,289		503		—		2,047		9,692		1,631		11,323
			Percent of Canada Total		Percent of Canada Total		Percent of Canada Total		Percent of Canada Total		Percent of Canada Total		Percent of Canada Total	
Av. 1955-1959	7,289	1,391	5.8%	476	2.0%	69	.3%	1,794	7.5%	11,019	46.2%	12,809	53.8%	23,828
Av. 1960-1964	6,851	2,105	15.4%	705	5.2%	87	.6%	2,284	16.7%	12,032	88.1%	1,632	11.9%	13,664
Percent Change	-6.0%	+51.3%		+48.1%		+26.1%		+27.3%		+9.2%		-87.3%		-42.7%

(1) Including Blue Pickeral

Source: Dominion Bureau of Statistics: Fisheries Statistics

Inquiry Into Freshwater Fish Marketing

TABLE 5
Freshwater Fish: Landings:
Ontario, Prairie Provinces, Northwest Territories: 1955-1964
(000 lbs.)

<u>Year</u>	<u>Ontario</u>	<u>Manitoba</u>	<u>Saskatchewan</u>	<u>Alberta</u>	<u>N.W.T.</u>	<u>Canada</u>
YELLOW PICKEREL						
1955	6,884	10,737	1,158	758	49	19,739
1956	11,672	7,669	1,259	215	19	20,922
1957	10,609	6,849	1,358	278	17	19,215
1958	7,826	5,477	1,544	374	152	15,475
1959	4,652	5,715	1,635	757	110	12,996
1960	3,701	6,893	1,738	1,063	253	13,888
1961	3,382	7,016	1,778	840	56	13,346
1962	3,707	8,115	2,340	469	31	14,662
1963	5,107	7,380	2,430	648	97	15,662
1964	3,678	4,853	2,289	503	—	11,323
BLUE PICKEREL						
1955	12,070	—	—	—	—	12,070
1956	12,020	—	—	—	—	12,020
1957	6,398	—	—	—	—	6,398
1958	834	—	—	—	—	834
1959	50	—	—	—	—	50
1960	5	—	—	—	—	5
1961	2	—	—	—	—	2
1962	—	—	—	—	—	—
1963	—	—	—	—	—	—
1964	—	—	—	—	—	—

Source: Dominion Bureau of Statistics: Fisheries Statistics

TABLE 6

Pike Landings; by Province and Region: 1955-1964
(000 lbs.)

Source: Dominion Bureau of Statistics: Fisheries Statistics, Ontario.

Inquiry Into Freshwater Fish Marketing

TABLE 7
Sauger Landings: by Province by Region: 1955-1964
 (000 lbs.)

<u>Year</u>	<u>Manitoba</u>		<u>Northern Ontario</u>		<u>Total Region</u>		<u>Great Lakes</u>		<u>Total Canada</u>
1955	4,255		44		4,299		124		4,423
1956	4,295		46		4,341		87		4,428
1957	5,264		29		5,293		75		5,368
1958	5,299		58		5,357		116		5,473
1959	3,890		40		3,930		73		4,003
1960	4,656		58		4,714		27		4,741
1961	3,195		61		3,256		44		3,300
1962	3,666		78		3,744		53		3,797
1963	5,270		72		5,342		64		5,406
1964	4,302		78		4,380		63		4,443
		<u>Percent of Canada Total</u>		<u>Percent of Canada Total</u>		<u>Percent of Canada Total</u>		<u>Percent of Canada Total</u>	
Av. 1955- 1959	4,601	97.1%	43	.9%	4,644	98.0%	95	2.0%	4,739
Av. 1960- 1964	4,218	97.3%	69	1.6%	4,287	98.8%	50	1.2%	4,337
Percent Change									-8.5%

Source: Dominion Bureau of Statistics: Fisheries Statistics

Inquiry Into Freshwater Fish Marketing

TABLE 8
Freshwater Fish Landings:
Ontario, Prairie Provinces, Northwest Territories: 1955-1964
(000 lbs.)

<u>Year</u>	<u>Ontario</u>	<u>Manitoba</u>	<u>Saskatchewan</u>	<u>Alberta</u>	<u>N.W.T.</u>	<u>Canada</u>
PERCH						
1955	5,181	1,210	—	223	—	6,765
1956	11,843	699	—	132	—	12,799
1957	12,068	661	—	45	—	12,861
1958	16,298	636	—	46	—	17,091
1959	19,968	490	—	139	—	20,709
1960	12,775	861	—	62	—	13,814
1961	18,627	806	—	106	—	19,723
1962	21,658	697	—	48	—	22,403
1963	18,724	552	—	52	—	19,328
1964	9,363	460	—	318	—	10,141
BASS						
1955	4,589	—	—	—	—	4,589
1956	5,795	—	—	—	—	5,795
1957	3,588	—	—	—	—	3,588
1958	1,848	—	—	—	—	1,848
1959	1,445	—	—	—	—	1,445
1960	3,304	—	—	—	—	3,304
1961	3,413	—	—	—	—	3,413
1962	2,491	—	—	—	—	2,491
1963	1,991	—	—	—	—	1,991
1964	1,836	—	—	—	—	1,836
SMELT						
1955	2,327	—	—	—	—	2,327
1956	4,015	—	—	—	—	4,015
1957	4,666	—	—	—	—	4,666
1958	4,968	—	—	—	—	4,968
1959	7,058	—	—	—	—	7,058
1960	11,666	—	—	—	—	11,666
1961	13,065	—	—	—	—	13,065
1962	19,314	—	—	—	—	19,314
1963	10,705	—	—	—	—	10,705
1964	12,887	—	—	—	—	12,887

Source: Dominion Bureau of Statistics: Fisheries Statistics

Inquiry Into Freshwater Fish Marketing

TABLE 9

Freshwater Fish Landings:

Ontario, Prairie Provinces, Northwest Territories:

1955-1964

(000 lbs.)

<u>Year</u>	<u>Ontario</u>	<u>Manitoba</u>	<u>Saskatchewan</u>	<u>Alberta</u>	<u>N.W.T.</u>	<u>Canada</u>
CISCO (LAKE HERRING)						
1955	935	—	—	—	—	935
1956	1,140	—	—	—	—	1,140
1957	1,996	—	—	—	—	1,996
1958	1,917	—	—	—	—	1,917
1959	2,946	—	—	—	—	2,946
1960	2,226	—	—	—	—	2,226
1961	1,854	—	—	—	—	1,854
1962	2,630	—	—	—	—	2,630
1963	2,375	—	—	—	—	2,375
1964	1,993	—	—	—	—	1,993
CISCO (CHUB, TULLIBEE)						
1955	989	2,899	1,250	4,093	—	9,231
1956	924	2,983	604	3,989	—	8,500
1957	775	2,078	561	4,519	—	7,593
1958	1,269	2,626	1,064	5,650	—	10,609
1959	1,575	2,524	500	5,346	—	9,945
1960	2,064	1,830	1,064	7,624	—	12,581
1961	2,993	1,946	1,082	4,377	—	10,398
1962	2,825	748	1,180	3,584	—	8,333
1963	2,329	918	990	3,923	—	8,160
1964	2,035	1,009	1,679	9,055	—	13,778

Source Dominion Bureau of Statistics: Fisheries Statistics

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TABLE 10

Freshwater Fish Landings:
Ontario, Prairie Provinces, Northwest Territories: 1955-1964
 (000 lbs.)

<u>Year</u>	<u>Ontario</u>	<u>Manitoba</u>	<u>Saskatchewan</u>	<u>Alberta</u>	<u>N.W.T.</u>	<u>Canada</u>
STURGEON						
1955	162	27	11	—	—	392
1956	140	45	10	—	—	386
1957	176	85	7	—	—	455
1958	246	75	11	—	—	627
1959	180	34	6	—	—	531
1960	185	22	2	—	—	518
1961	196	8	3	—	—	567
1962	135	7	—	—	—	n.a.
1963	134	5	—	—	—	n.a.
1964	98	5	5	—	—	n.a.
GOLDEYE						
1955	6	72	—	—	—	78
1956	84	56	—	—	—	140
1957	31	80	—	—	—	111
1958	22	110	—	—	—	161
1959	15	58	—	—	—	73
1960	33	61	—	—	—	126
1961	24	56	—	—	—	97
1962	34	43	—	—	—	n.a.
1963	20	53	—	—	—	n.a.
1964	28	70	—	—	—	n.a.

Source: Dominion Bureau of Statistics: Fisheries Statistics.

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TABLE II

Freshwater Fish Landings:
Ontario, Prairie Provinces, Northwest Territories: 1955-1964
 (000 lbs.)

<u>Year</u>	<u>Ontario</u>	<u>Manitoba</u>	<u>Saskatchewan</u>	<u>Alberta</u>	<u>N.W.T</u>	<u>Canada</u>
SUCKER						
1955	1,396	2,373	—	217	—	3,999
1956	1,394	2,911	—	330	—	4,792
1957	1,316	3,878	—	168	—	5,491
1958	1,510	5,102	—	350	—	7,043
1959	1,409	5,003	—	557	—	7,236
1960	1,616	4,727	—	479	—	7,119
1961	1,593	4,815	—	286	—	7,041
1962	1,539	8,035	—	344	—	9,918
1963	1,650	7,763	—	270	—	9,683
1964	1,450	4,672	—	265	—	6,387
BURBOT (LING)						
1955	506	2,681	—	254	—	—
1956	451	141	—	326	—	—
1957	354	46	—	813	—	—
1958	484	410	—	277	—	—
1959	431	769	—	735	—	—
1960	614	937	—	217	—	—
1961	637	826	—	216	—	—
1962	623	928	—	230	—	—
1963	615	609	—	186	—	—
1964	600	569	—	—	—	—

Source: Dominion Bureau of Statistics: Fisheries Statistics

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TABLE 12

Freshwater Fish Landings: Ontario, Prairie Provinces, Northwest Territories: 1955-1964 (000 lbs.)

<u>Year</u>	<u>Ontario</u>	<u>Manitoba</u>	<u>Saskatchewan</u>	<u>Alberta</u>	<u>N.W.T.</u>	<u>Canada</u>
CATFISH						
1955	1,109	73	—	—	—	1,535
1956	1,140	59	—	—	—	1,472
1957	1,033	87	—	—	—	1,411
1958	965	186	—	—	—	1,543
1959	799	87	—	—	—	1,268
1960	789	91	—	—	—	1,234
1961	607	44	—	—	—	1,146
1962	736	16	—	—	—	752
1963	1,040	21	—	—	—	1,061
1964	287	13	—	—	—	300
CARP						
1955	1,318	64	—	—	—	1,670
1956	1,906	228	—	—	—	2,445
1957	1,507	126	—	—	—	1,800
1958	1,352	284	—	—	—	1,796
1959	1,519	222	—	—	—	1,883
1960	1,124	324	—	—	—	1,609
1961	1,313	64	—	—	—	1,592
1962	1,124	93	—	—	—	1,217
1963	1,323	95	—	—	—	1,418
1964	938	655	—	—	—	1,593

Source: Dominion Bureau of Statistics: Fisheries Statistics

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TABLE 13
Freshwater Fish Landings:
Ontario, Prairie Provinces, Northwest Territories:
1955-1964
(000 lbs.)

<u>Year</u>	<u>Ontario</u>	<u>Manitoba</u>	<u>Saskatchewan</u>	<u>Alberta</u>	<u>N.W.T.</u>	<u>Canada</u>
OTHER FRESHWATER FISH						
1955	1,370	—	107	39	—	5,446
1956	1,403	—	114	151	—	2,854
1957	1,727	—	98	13	—	3,291
1958	2,411	—	99	1	—	3,918
1959	1,987	—	204	—	—	4,377
1960	2,178	—	218	7	17	4,372
1961	1,936	—	448	8	12	3,963
1962	1,880	—	815	14	—	—
1963	3,418	—	550	7	—	—
1964	—	—	459	—	—	—

Source: Dominion Bureau of Statistics: Fisheries Statistics

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TABLE 14

Northern Ontario: Landings of Lake Trout,
Whitefish, Yellow Pickerel, Northern Pike, &
Sauger: 1955-1964
(000 lbs.)

Year	Lake Trout	Whitefish	Yellow Pickerel	Northern Pike	Sauger	Percent of Provincial Total	Percent of Provincial Total
1955	110	1,497	1,437	824	44		
1956	62	1,643	1,593	773	46		
1957	153	1,658	1,572	820	29		
1958	244	1,855	2,048	923	58		
1959	282	2,203	2,322	923	40		
1960	161	2,409	2,258	878	58		
1961	129	2,180	2,262	842	61		
1962	137	2,544	2,539	850	78		
1963	140	2,320	2,315	887	72		
1964	117	2,324	2,047	1,033	78		
Av.							
1955-1959	170	1,771	1,794	853	43	89.9%	31.2%
Av.							
1960-1964	137	2,355	2,284	898	69	88.8%	58.0%

Source: Dominion Bureau of Statistics: Fisheries Statistics, Ontario.

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TABLE 15

Great Lakes: Landings; Selected Species: 1955-1964
(000 lbs.)

Year	Blue Pickerel	Lake Trout	Whitefish	Yellow Pickerel	Northern Pike	Total Five Species	Total Landings Perch, Smelt, Bass	Total Landings	Perch, smelt, of Total Landings
1955	12,070	1,080	2,954	5,447	88	21,639	12,097	38,851	31.1%
1956	12,020	579	2,406	10,079	131	25,215	21,653	53,833	40.2%
1957	6,398	345	1,568	9,037	93	17,441	20,322	45,345	44.8%
1958	834	378	1,422	5,778	96	8,508	23,114	39,860	58.0%
1959	50	240	979	2,330	70	3,669	28,471	41,368	68.8%
1960	5	124	1,446	1,443	87	3,105	27,745	39,366	70.5%
1961	2	52	1,727	1,120	147	3,048	35,105	46,984	74.7%
1962	-	71	1,096	1,168	127	2,462	43,463	55,211	78.7%
1963	-	114	1,036	2,792	104	4,046	31,420	45,905	68.4%
1964	-	108	906	1,631	101	2,746	24,986	25,572	67.7%

Source: Dominion Bureau of Statistics: Fisheries Statistics, Ontario

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TABLE 16

Canada: Exports of Freshwater Fish

	Volume 000 lbs.	Value \$000
1955	62,256	17,811
1956	68,116	19,897
1957	64,111	20,350
1958	60,775	21,275
1959	59,856	19,672
1960	60,314	20,211
1961	69,351	21,529
1962	69,903	21,549
1963	66,190	21,458
1964	60,388	21,068
1965	60,028	22,454

Source: D.B.S. Trade of Canada

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TABLE 17

United States Supply of Whitefish: 1955-1964

(000 lbs. round weight basis)

<u>Year</u>	<u>United States Production</u>	<u>Imports from Canada</u>	<u>Total U.S. Supply</u>	<u>Percent Supply by Canada</u>
1955	1,998	20,072	22,070	91
1956	1,716	19,170	20,886	92
1957	1,626	20,521	22,147	93
1958	719	20,479	21,198	97
1959	1,036	20,454	21,490	95
1960	970	22,990	23,960	96
1961	1,321	21,458	22,779	94
1962	1,072	23,051	24,123	96
1963	1,081	21,645	22,726	95
1964	1,617	19,973	21,590	92

Source: United States Data: *Fisheries of the United States*, U.S. Department of the Interior Canadian Data; Appendix, Table 23

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TABLE 18

United States Supply of Pickerel ^(a): 1955-1964
(000 lbs. round weight basis)

<u>Year</u>	<u>United States Production</u>	<u>Imports from Canada</u>	<u>Total U.S. Supply</u>	<u>Percent Supplied by Canada</u>
1955	15,529	33,258	48,787	68
1956	14,873	38,131	53,004	72
1957	10,338	31,499	41,837	75
1958	5,681	22,643	28,324	80
1959	2,762	15,973	18,735	85
1960	2,466	14,479	16,945	85
1961	2,007	17,998	20,005	90
1962	1,641	18,618	20,259	92
1963	1,812	19,346	21,158	91
1964	1,543	18,914	20,457	92

Source: United States Data; *Fisheries of the United States*,
U.S. Department of Interior Canadian Data; Appendix, Table 24

(a) Includes Blue Pickerel, Yellow Pickerel, and Sauger

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TABLE 19

United States supply of pike: 1955-1964
(000 lbs. round weight basis)

<u>Year</u>	<u>United States Production</u>	<u>Imports from Canada</u>	<u>Total U.S. Supply</u>	<u>Percent Supplied by Canada</u>
1955	184	6,679	6,863	97
1956	163	7,039	7,202	98
1957	147	7,264	7,411	98
1958	155	7,176	7,331	98
1959	148	7,234	7,382	98
1960	230	6,760	6,990	97
1961	304	5,428	5,732	95
1962	187	5,322	5,509	97
1963	169	4,925	5,094	97
1964	248	6,437	6,685	96

Source: United States Data; *Fisheries of the United States*;
U.S. Department of Interior Canadian Data; Appendix, Table 25

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TABLE 20
Monthly Price Ranges for Pickerel and Whitefish:
Chicago, 1965
(cents per lb.)

	<u>Yellow Pickerel⁽¹⁾</u>	<u>Whitefish⁽²⁾</u>
January	45-50	30-40
February	55-60	35-45
March	55-65	32-55
April	43-90	40-70
May	44-46	40-47
June	38-42	33-42
July	42-56	30-45
August	45-60	30-52
September	42-60	34-50
October	45-58	32-45
November	56-62	30-60
December	55-62	30-60

(¹) Fresh and Frozen, round or dressed,
Canadian fish (which excludes Great
Lakes fish)

(²) Fresh and Frozen, Canadian fish
(excludes Great Lakes fish)

Note: The range limits, not the monthly range,
indicate the variations in prices from
month to month. The monthly range
reflects the differences in grades and
qualities which are offered.

Source: United States Department of Interior.

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TABLE 21
Production of Gelfilte Fish: United States: 1957-1965

	<u>1957⁽¹⁾</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1965</u>
Number of Plants	4	5	5	n.a.	5	5
Standard Cases (M)	170.2	240.1	246.1	234.9	276.5	319.1
Pounds per Case	48	48	48	48	48	48
Pounds (M)	8,170.1	11,520.1	11,812.8	11,275.2	13,272.0	15,316.8
Value (M)	3,088.1	4,024.8	4,371.5	4,396.0	4,981.5	5,153.2

(¹) First Year Available

Source: United States Department of Interior

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TABLE 22

Canadian Freshwater Fish Exports: By Form of Utilization: 1955-1964 Product Weight and Landed Weight (000 lbs.)

	Exports — Product Weight		Exports — Landed Weight ⁽¹⁾		TOTAL
	Fresh or Frozen Round or dressed	Fillets, Fresh or Frozen	Fresh or Frozen Round or dressed	Fillets, Fresh or Frozen	
1955	48,189	14,067	53,008	32,354	85,362
1956	51,696	16,420	56,866	37,766	94,632
1957	47,083	17,028	51,791	39,164	90,955
1958	45,295	15,480	49,825	35,604	85,429
1959	43,220	16,636	47,542	38,263	85,805
1960	45,152	15,162	49,667	34,873	84,540
1961	54,610	14,742	60,070	33,906	93,976
1962	52,687	17,217	57,956	39,599	97,555
1963	47,108	19,082	51,819	43,889	95,708
1964	44,783	15,606	49,262	35,894	85,156

Source: Export data from D.B.S. Trade of Canada

(1) Conversion factors used are: 1.1 for round or dressed fish
2.3 for fillets

Inquiry into Freshwater Fish Marketing

TABLE 23

Canadian Exports of Whitefish: By Form of Utilization: 1955-1964 Product Weight and Landed Weight (000 lbs.)

	Exports — Product Weight		Exports — Landed Weight ⁽¹⁾		TOTAL
	Fresh or Frozen Round or dressed	Fillets, Fresh or Frozen	Fresh or Frozen Round or dressed	Fillets, Fresh or Frozen	
1955	16,136	1,161	17,750	2,322	20,072
1956	15,282	1,180	16,810	2,360	19,170
1957	16,410	1,235	18,051	2,470	20,521
1958	16,506	1,161	18,157	2,322	20,479
1959	16,196	1,319	17,816	2,638	20,454
1960	16,769	2,277	18,446	4,554	22,990
1961	16,687	1,551	18,356	3,102	21,458
1962	17,159	2,088	18,875	4,176	23,051
1963	15,455	2,322 ⁽²⁾	17,001	4,644	21,645
1964	14,628	1,941 ⁽²⁾	16,091	3,882	19,973

Source: Export data from D.B.S. Trade of Canada

(1) Conversion factors used are: 1.1 for round or dressed fish
2.0 for fillets

(2) Consists of Export Class 3795 plus one-half of exports of Export Class 3999

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TABLE 24
Canadian Freshwater Fish: Unit Export Values: Selected Species:
1955-1965
(cents per lb.)

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Whole Dressed Fish-Fresh											
Pickereel	23.2	21.7	27.3	35.4	40.2	39.4	35.8	37.2	39.2	39.2	51.6
Pike (¹)	13.8	12.5	13.8	15.5	18.1	20.4	21.5	20.6	20.0	16.3	20.3
Sauger	21.7	21.9	25.0	23.6	36.6	37.2	30.6	34.4	35.7	31.6	44.3
Lake Trout	29.4	35.3	36.7	38.3	36.9	39.1	43.4	39.5	37.3	37.4	40.4
Whitefish	33.1	36.1	35.9	37.5	36.1	37.5	38.6	36.3	36.5	36.7	38.6
Perch	16.6	16.2	16.7	21.1	16.0	20.2	20.4	13.3	13.4	22.1	18.4
Smelt									13.3	13.9	13.3
Freshwater Fish Fillets											
Pickereel Fresh	44.3	47.2	53.3	66.3	80.4	82.2	65.1	61.0	63.1	66.3	75.5
Frozen							66.3	66.1	70.5	70.6	87.5
Pike	31.4	31.2	33.1	33.8	36.6	37.7	38.2	36.6	35.3	40.5	36.9
Lake Trout									46.9	45.6	45.7
Whitefish	31.8	33.6	34.7	33.0	33.3	34.2	34.1	32.1	36.2	40.1	34.2
Perch - Fresh									29.7	48.1	49.1
Frozen									30.3	48.9	53.4

Inquiry into freshwater fish marketing

TABLE 25

Canadian exports of pike: by form of utilization: 1955-1964
Product weight and landed weight
(000 lbs.)

	Exports — Product Weight		Exports — Landed Weight ⁽¹⁾		TOTAL
	Fresh or Frozen Round or dressed	Fillets, Fresh or Frozen	Fresh or Frozen Round or dressed	Fillets, Fresh or Frozen	
1955	2,228	1,799	2,451	4,228	6,679
1956	2,318	1,910	2,550	4,489	7,039
1957	1,872	2,215	2,059	5,205	7,264
1958	1,986	2,124	2,185	4,991	7,176
1959	1,805	2,233	1,986	5,248	7,234
1960	1,496	2,176	1,646	5,114	6,760
1961	1,266	2,717	1,393	4,035	5,428
1962	1,065	1,766	1,172	4,150	5,322
1963	961	1,646	1,057	3,868	4,925
1964	795	2,367	875	5,562	6,437

Source: Export data from D.B.S. Trade of Canada

(¹) Conversion factors used are: 1.1 for round or dressed fish
2.5 for fillets

Inquiry into Freshwater Fish Marketing

TABLE 26

Canadian Exports of Pickerel and Sauger: By form of Utilization: 1955-1964
Product Weight and Landed Weight
(000 lbs.)

	Exports — Product Weight		Exports — Landed Weight ⁽¹⁾		TOTAL
	Fresh or Frozen Round or dressed	Fillets, Fresh or Frozen	Fresh or Frozen Round or dressed	Fillets, Fresh or Frozen	
1955	14,656	7,769	15,389	17,869	33,258
1956	17,438	8,618	18,310	19,821	38,131
1957	14,681	6,993	15,415	16,084	31,499
1958	13,007	3,907	13,657	8,906	22,643
1959	10,367	2,212	10,885	5,088	15,973
1960	9,825	1,810	10,316	4,163	14,479
1961	10,979	2,813	11,528	6,470	17,998
1962	10,240	3,420	10,752	7,866	18,618
1963	9,695	3,985	10,180	9,166	19,346
1964	9,201	4,023	9,661	9,253	18,914

Source: Export data from D.B.S. Trade of Canada

(¹) Conversion factors used are: 1.05 for round or dressed fish
2.3 for fillets

Inquiry Into Freshwater Fish Marketing

TABLE 27

Spread Between Export Price and Fisherman's Price; Dressed Pickeral

(Selected Days 1965)
(Cents per pound)

	June 12	June 17	June 24	July 22	Aug. 3	Aug. 5	Aug. 30	Sept. 15	Sept. 18	Oct. 15
Price Received by Exporter:										
Dressed Pickeral (F.O.B. Winnipeg)	50¢	50¢	50¢	54¢	54¢	58¢(b) (d)		56¢		56¢
Pickeral Fillets				56¢(b) (c)				64¢(b) (e)		
Price Paid by Exporter:										
Dressed Pickeral: (F.O.B. Winnipeg)	38¢	38¢		41¢	41¢	46¢	46¢	47¢	46¢	47¢
Price at Lake to Fisherman (Northern Lakes)	25-28	20-24	22-26	16-20			18-26(a)			
Spread - Dressed Pickeral	22-25	26-30	24-28	34-38	28-36			30-38		30-38
Pickeral Fillets				28-32		24-32		30-38		

Source: Auditor's Report

Province of Manitoba

(1) Fish Purchased and Sold by Two Manitoba Exporters

(a) July 29 - Oct. 15

(b) Fillet price per pound converted to dressed weight basis

(c) July 5

(d) August 16

(e) Sept. 22

Inquiry Into Freshwater Fish Marketing

TABLE 28

Whitefish: Export Prices and Prices to Fishermen: selected days in 1965

Date Fish Purchased	June 12	July 17	July 22	June 24	Sept. 15	Oct. 15
Price Received by Exporter: Dressed (F.O.B. Winnipeg)						
Med.	30	28 ⁽¹⁾		30	35	30
Large	40	35	40	35	45	35
Jumbo	50	45	50	45	55	45
Filletts ⁽²⁾	17	17	17	17	17	17
Price Paid by Exporters: Med.	27½	27¼		24	29	22
(F.O.B. Winnipeg) Large	32½	32¼	35	29	34	27
Jumbo	42½	42¼	45	34	39	32
Price at Lake to Fisherman (not packed)						
Ungraded ⁽³⁾	7-20	5-20	4-20	6-13	4-14	4-12

⁽¹⁾ Amount actually received: The invoice prices of 32¢, 40¢ and 50¢ were reduced by the United States Importer.

⁽²⁾ Fillet price of 28¢ per pound converted to dressed weight basis.

⁽³⁾ Prices reported made no distinction as to size, or "A" whitefish for export or "B" whitefish for filleting.

Source: Auditor's Report
Government of Manitoba.

Inquiry Into Freshwater Fish Marketing

TABLE 29
Freshwater Fish: Landed Value and Market Value, All Species
By Province: 1955-1964

	MANITOBA				SASKATCHEWAN				ALBERTA				N.W.T.	
	Lake Value	Market Value	Lake Value as share of Market Value		Lake Value	Market Value	Lake Value as share of Market Value		Lake Value	Market Value	Lake Value as share of Market Value		Market Value	Lake Value as share of Market Value
	(\$000)				(\$000)				(\$000)					(\$000)
1955	3,477	6,044	57.5		763	1,617	47.2		688	1,144	60.1		1,529	742
1956	2,947	6,426	45.9		784	1,766	44.4		790	1,306	60.5		1,463	787
1957	3,279	5,929	55.3		939	2,010	46.7		854	1,451	58.9		1,356	720
1958	3,540	6,844	51.7		1,091	2,339	46.6		879	1,450	60.6		1,235	682
1959	3,757	6,689	56.2		1,190	2,596	45.8		1,016	1,684	60.3		1,146	703
1960	3,867	7,035	55.0		1,367	2,830	48.3		1,159	2,021	57.3		1,075	700
1961	3,174	6,214	51.1		1,385	3,166	43.7		883	1,701	51.9		1,179	675
1962	4,229	7,979	53.0		1,478	3,115	47.4		714	1,234	57.9		1,231	859
1963	4,356	7,563	57.6		1,300	2,711	48.0		676	1,125	60.1		1,331	796
1964	3,720	6,885	54.0											

Source: Fisheries Statistics of Canada, D.B.S.

Inquiry Into Freshwater Fish Marketing

TABLE 30
Freshwater Fish: Landed Value and Market Value, Selected Species
By Province: 1959-1964

	MANITOBA				SASKATCHEWAN				ALBERTA				N.W.T.	
	Lake Value	Market Value	Lake Value as Percent of Market Value		Lake Value	Market Value	Lake Value as Percent of Market Value		Lake Value	Market Value	Lake Value as Percent of Market Value		Lake Value	Market Value
	(\$000)				(\$000)				(\$000)					(\$000)
1959	1,300	2,158	60.2		167	475	35.2		83	210	39.5			
1960	1,518	2,564	59.2		265	506	52.4		123	279	44.1			
1961	1,226	2,291	53.5		215	462	46.5		90	214	42.1			
1962	1,750	3,141	55.7		314	621	50.6		53	120	44.2			
1963	1,767	2,761	64.0		365	650	56.2		83	184	45.1			
1964	1,277	2,164	59.0											
WHITEFISH														
1959	1,009	1,846	54.7		665	1,440	46.2		627	1,019	61.5		737	59.2
1960	724	1,420	51.0		764	1,615	47.3		667	1,226	54.4		776	63.3
1961	929	1,676	55.4		786	1,743	45.1		535	1,087	49.2		868	57.6
1962	1,126	2,063	54.6		811	1,730	46.9		395	678	58.3		920	67.9
1963	989	1,709	57.9		648	1,400	46.3		323	535	60.4		1,032	60.4
1964	1,090	1,864	58.5											
TROUT														
1959	53	123	43.1		170	478	35.6		235	357	65.8		357	65.8
1960	56	120	46.7		207	461	44.9		155	228	68.0		228	68.0
1961	56	108	51.9		252	697	36.2		146	251	58.2		251	58.2
1962	83	159	52.2		232	520	44.6		200	265	75.5		265	75.5
1963	58	114	50.9		183	427	42.9		124	217	57.1		217	57.1
1964	51	106	48.1											

Source: Fisheries Statistics of Canada, D.B.S.

APPENDIX B

Tentative Grades of Fish Based On Grading Practices Presently Recognized in the Fish Trade

Whitefish

- (1) Great Lakes, Lake Winnipeg, Great Slave.
- (2) All other lakes which produce relatively light-coloured whitefish. In most cases these are the moderate-sized lakes.
- (3) All lakes which produce the so-called "black" whitefish. In most cases these are the smaller lakes.

Yellow Pickerel

- (1) Great Lakes, Lake Winnipeg, Lake Winnipegosis, Lake Manitoba. In Manitoba, Lake Dauphin, Cedar Lake and Moose Lake; in Saskatchewan, Canoe and Primrose Lakes, and in Alberta, Lac la Biche, Also from neighbouring lakes of comparable size.
- (2) Other lakes – mainly comparatively small and shallow lakes.

Lake Trout

- (1) Lakes where most of the lake trout have yellow, pink, or red flesh.
- (2) Lakes where most of the lake trout have white flesh.
- (3) The deepwater lake trout of Lake Superior, locally known as "sicowet" or "fat trout".

Pike

No difference in grade related to lake of origin.

Sauger

No difference in grade related to lake of origin.

Yellow Perch

- (1) Great Lakes, Lake Manitoba
- (2) Other lakes.

Smelt

For all practical purposes, only produced in Lake Erie.

White Bass

For all practical purposes, only produced in Lake Erie.

Cisco

- (1) Great Lakes = lake herring (limited demand).
- (2) Great Lakes = chubs (limited demand).
- (3) Northern Ontario, Prairie Provinces and N.W.T. = tullibee.
Presumably tullibee will be marketed, if at all, only as animal food.

Goldeye

- (1) Lake Claire, Lake Winnipegosis, Lake Winnipeg, Lake Dauphin and Sandy Lake, also the Saskatchewan River and related waters from the big dam at Grand Rapids to Cumberland Lake. Also, any other waters from which Winnipeg smokers regard goldeye as comparable with those from the waters listed above.
- (2) Other waters.

Sturgeon

No difference in grade related to lake of origin.

Other Species

No difference in grade related to lake of origin.

APPENDIX C

THE OBJECTIVES OF FISH INSPECTION ⁽¹⁾

The objective of fish inspection are to protect the health of the consumer, to ensure that fair trade practices are observed which, among other things, will prevent fraud and deception, and to create confidence in foreign buyers by maintaining a consistent level of good quality in Canadian fish exports. As a matter of policy, the department develops standards for fish products to achieve these objectives.

In order to provide that a fish product is suitable for consumption and is correctly described, a standard may include definition, composition, quality, hygiene including the environment of processing, grades, labelling, sampling and methods of analyses. Quality includes wholesomeness which means, in part, the absence of substances aesthetically offensive to man such as flesh parasites.

Once a standard has been developed and promulgated, it is the responsibility of the Department to enforce it and of industry to meet it. Constitutionally, the Department can enforce inspection legislation only in respect of fish products being shipped out of or into a province. While, in some instances, the Department assigns an inspection officer to a fish processing establishment to provide technical advice and assistance in the solving of production and processing problems, the officers is not held responsible for the quality of the product from such plant. This liability must rest with the processor.

(1) Extract from an exchange of correspondence between the Commissioner and the Hon. H.J. Robichaud, Minister of the Department of Fisheries.

